

SUMMER MATH PACKET

Ms. Freeman's Class

Rising 7th Grade

June-August, 2024



Dear Students and Families -

This packet provides a range of activities that review the math skills we learned this year and some that might be a *friendly* challenge. Students should look through the entire packet to see what topics are covered and that examples are provided for each section. (You can also review skills online with the video links we used in class.) **DO NOT WAIT UNTIL AUGUST** to start! This should be a gentle review of skills to prepare you for a smooth start when we return in the Fall.

Skills included in this packet:

Order of Operations	Adding/ Subtracting Fractions
Percents	Simple Equations with Variables
Ratios	Area/Perimeter of Triangles and Parallelograms
Proportions	Basic Equations with Integers
Functions	Coordinate Graphing

Order of Operations

Name _____

Date _____

Compute: $(80 \div 2) - 2 \times (3 \times 5)$

• Do the operations within parentheses first.

• Multiply or divide from left to right.

• Add or subtract from left to right.

$$\begin{array}{rclcl}
 (80 \div 2) & - & 2 \times (3 \times 5) & & \\
 \downarrow & & \downarrow & & \\
 40 & - & 2 \times 15 & & \\
 & & \downarrow & & \\
 40 & - & 30 & & \\
 40 & - & 30 & = & 10
 \end{array}$$

Use the order of operations to compute.

- | | |
|--|---|
| 1. $5 - 8 \div 2 + 7$ _____ | 2. $20 \div 4 + 3 \times 6$ _____ |
| 3. $(8 \times 7) + (56 \div 8)$ _____ | 4. $(42 - 12) \div (7 + 3)$ _____ |
| 5. $30 + 18 \div 3 - 12$ _____ | 6. $24 - 9 \div 3 \times 5$ _____ |
| 7. $2 + 6 \times 10 \div 30 + 7$ _____ | 8. $19 + 63 \div 9 \times 3 - 13$ _____ |
| 9. $59 - 35 \div 7 \times 4 + 53$ _____ | 10. $50 - 12 \div 3 \times 2$ _____ |
| 11. $20 \div 4 - 4 + (81 \div 9)$ _____ | 12. $25 - 6 \times 4 + (23 - 3) - 4$ _____ |
| 13. $(42 - 6) + 5 - 3 + (8 \times 3)$ _____ | 14. $3 + (37 - 1) \div 9 + (18 + 3)$ _____ |
| 15. $(5 \times 9) \div 5 + (8 \div 8)$ _____ | 16. $(64 \div 8) - 5 + (33 \times 3)$ _____ |
| 17. $(35 - 10) \div (4 + 1)$ _____ | 18. $20 + 6 \div (4 - 2)$ _____ |
| 19. $(6 \times 9) + (63 \div 7)$ _____ | 20. $32 \div 8 + 4 + (6 \times 0)$ _____ |
| 21. $(42 + 10) \div (4 \div 2)$ _____ | 22. $(55 - 15) \div (5 \times 2)$ _____ |
| 23. $(8 \times 8) + (9 \times 1)$ _____ | 24. $35 \div 7 + 5 - (7 \times 1)$ _____ |

More Renaming in Subtraction

Name _____

Date _____

Subtract: $5\frac{1}{3} - 3\frac{5}{6} = n$

$$\begin{array}{r} 5\frac{1}{3} = 5\frac{4}{12} \\ - 3\frac{5}{6} = -3\frac{10}{12} \\ \hline \end{array}$$

$$\begin{array}{l} 5\frac{4}{12} = 4 + 1 + \frac{4}{12} \\ = 4 + \frac{12}{12} + \frac{4}{12} \\ = 4 + \frac{16}{12} \end{array}$$

$$\begin{array}{r} 4\frac{16}{12} \\ - 3\frac{10}{12} \\ \hline 1\frac{6}{12} = 1\frac{1}{2} \quad n = 1\frac{1}{2} \end{array}$$

Rename each mixed number.

1. $6\frac{3}{4} = 5 + 1 + \frac{3}{4}$
 $= 5 + \frac{4}{4} + \frac{3}{4}$
 $= 5\frac{7}{4}$

2. $4\frac{7}{10} = \underline{\quad} + 1 + \frac{7}{10}$
 $= \underline{\quad} + \frac{10}{10} + \frac{7}{10}$
 $= \underline{\quad}\frac{17}{10}$

3. $9\frac{5}{8} = 8 + \frac{8}{8} + \frac{5}{8}$
 $= \underline{\quad} + \frac{8}{8} + \frac{5}{8}$
 $= \underline{\quad}\frac{13}{8}$

Subtract.

4. $\begin{array}{r} 6\frac{3}{4} \\ - 2\frac{7}{8} \\ \hline \end{array}$

5. $\begin{array}{r} 5\frac{1}{6} \\ - 2\frac{1}{2} \\ \hline \end{array}$

6. $\begin{array}{r} 5\frac{1}{4} \\ - \frac{3}{8} \\ \hline \end{array}$

7. $\begin{array}{r} 9\frac{2}{3} \\ - 7\frac{5}{6} \\ \hline \end{array}$

8. $\begin{array}{r} 7\frac{1}{2} \\ - \frac{4}{5} \\ \hline \end{array}$

9. $\begin{array}{r} 4\frac{3}{4} \\ - 3\frac{5}{6} \\ \hline \end{array}$

10. $\begin{array}{r} 8\frac{1}{3} \\ - 4\frac{7}{8} \\ \hline \end{array}$

11. $\begin{array}{r} 3\frac{3}{9} \\ - 1\frac{5}{6} \\ \hline \end{array}$

12. $\begin{array}{r} 11\frac{1}{12} \\ - 2\frac{5}{12} \\ \hline \end{array}$

13. $\begin{array}{r} 8\frac{1}{4} \\ - 1\frac{9}{14} \\ \hline \end{array}$

14. $\begin{array}{r} 6\frac{5}{8} \\ - 1\frac{4}{5} \\ \hline \end{array}$

15. $\begin{array}{r} 7\frac{5}{9} \\ - 6\frac{5}{6} \\ \hline \end{array}$

16. $\begin{array}{r} 9\frac{5}{6} \\ - 2\frac{7}{8} \\ \hline \end{array}$

17. $\begin{array}{r} 12\frac{5}{7} \\ - 9\frac{5}{6} \\ \hline \end{array}$

18. $\begin{array}{r} 9\frac{1}{8} \\ - 3\frac{5}{12} \\ \hline \end{array}$

19. $8\frac{2}{3} - 6\frac{3}{4} = \underline{\quad}$

20. $4\frac{1}{5} - \frac{4}{5} = \underline{\quad}$

21. $3\frac{3}{8} - 2\frac{9}{10} = \underline{\quad}$

22. $10\frac{1}{5} - \frac{12}{15} = \underline{\quad}$

23. $7\frac{1}{2} - \frac{9}{12} = \underline{\quad}$

24. $9\frac{1}{4} - \frac{5}{6} = \underline{\quad}$

Problem Solving

25. Mr. Lin drove $18\frac{1}{2}$ mi to work. Then he moved $6\frac{8}{10}$ mi closer to work. How far does he drive to work now? _____

Areas of Rectangles and Squares

Name _____

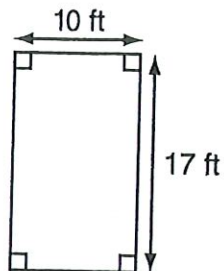
Date _____

Rectangles

$$A = \ell \times w$$

$$A = 17 \text{ ft} \times 10 \text{ ft}$$

$$A = 170 \text{ ft}^2$$

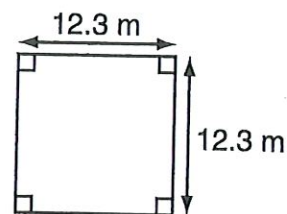


Squares

$$A = s \times s = s^2$$

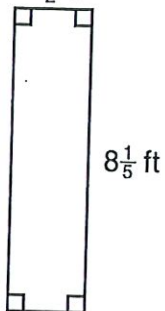
$$A = 12.3 \text{ m} \times 12.3 \text{ m}$$

$$A = 151.29 \text{ m}^2$$



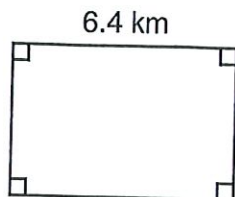
Find the area of each rectangle.

1. $2\frac{1}{2}$ ft



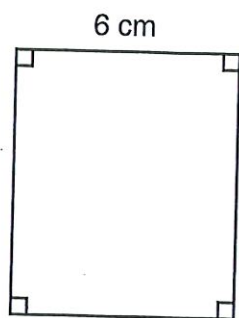
$8\frac{1}{5}$ ft

2.



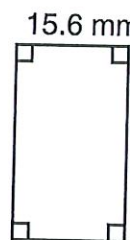
4.9 km

3.



$7\frac{1}{2}$ cm

4.

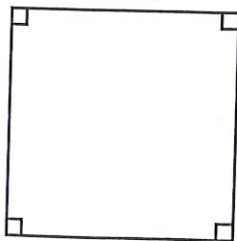


25.4 mm

Find the area of each square.

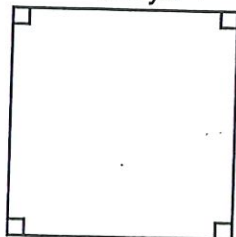
5.

13 in.



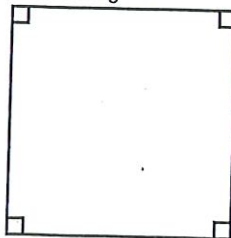
6.

8.8 yd



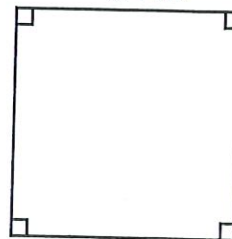
7.

$2\frac{1}{5}$ m



8.

6.1 mi



Find the area of each square or rectangle.

9. 7.3 dm long
3.9 dm wide

10. $s = 6\frac{1}{8}$ in.

11. 22 mm long
18 mm wide

12. $s = 4.9$ cm

13. 29 yd long
 $9\frac{3}{4}$ yd wide

14. $s = 9.6$ m

15. 2 km long
0.5 km wide

16. $s = 8\frac{1}{2}$ ft

Areas of Parallelograms and Triangles

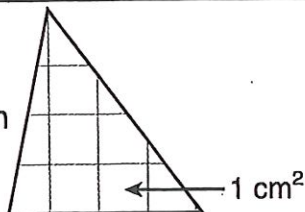
Name _____

Date _____

$$A = \frac{1}{2} \times b \times h$$

$$A = \frac{1}{2} \times 4 \text{ cm} \times 4 \text{ cm}$$

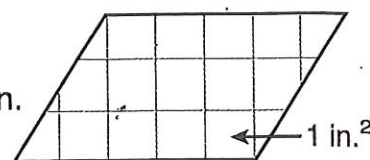
$$A = 8 \text{ cm}^2$$



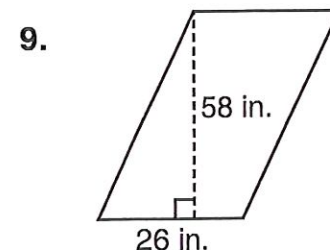
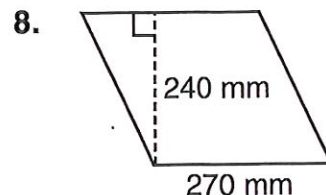
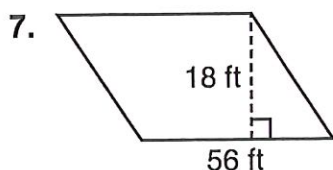
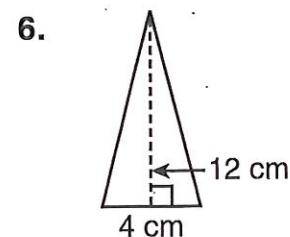
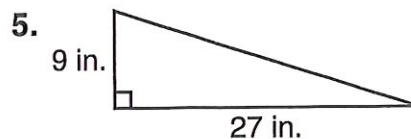
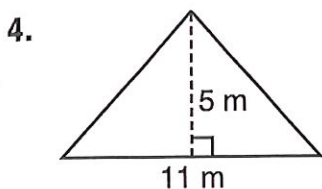
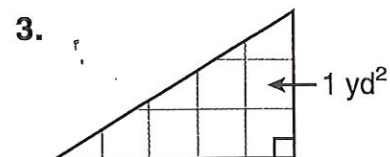
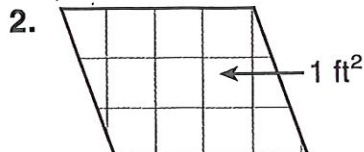
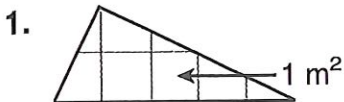
$$A = b \times h$$

$$A = 5 \text{ in.} \times 3 \text{ in.}$$

$$A = 15 \text{ in.}^2$$



Find the area.



Problem Solving

10. A square measures 14 in. along one side. A parallelogram has a base of 18 in. and a height of 10 in. Which figure has the greater area?

11. A parallelogram has a base of 32 cm and a height of 25 cm. A triangle has a base of 66 cm and a height of 25 cm. Which figure has the greater area? by how much?

Use with Lesson 12-7, pages 394–395 in the Student Book.
Then go to Lesson 12-8, pages 396–397 in the Student Book.

Ratios as Fractions

Name _____

Date _____



The ratio of bees to butterflies is
2 to 3 or 2 : 3 or $\frac{2}{3}$.

The ratio of butterflies to bees is
3 to 2 or 3 : 2 or $\frac{3}{2}$.

Equivalent Ratios

$$\frac{4}{6} = n$$

$$\frac{4}{6} = \frac{4 \times 2}{6 \times 2} = \frac{8}{12}$$

or

$$\frac{4}{6} = \frac{4 \div 2}{6 \div 2} = \frac{2}{3}$$

So $\frac{4}{6} = \frac{8}{12} = \frac{2}{3}$ are equivalent ratios.

There are 5 dogs, 6 cats, 7 birds, 11 mice, and 2 snakes in the pet store.
Write each ratio in three ways.

1. dogs to cats _____
3. birds to mice _____
5. snakes to dogs _____
7. mice to cats _____
9. dogs to mice _____

2. cats to birds _____
4. mice to snakes _____
6. birds to dogs _____
8. snakes to birds _____
10. cats to mice _____

Write each ratio in simplest form.

11. 4 to 8 _____
12. 4 : 12 _____
13. $\frac{14}{7}$ _____
14. 16 to 32 _____
15. 24 to 6 _____
16. 7 : 18 _____
17. 16 : 24 _____
18. $\frac{15}{36}$ _____
19. $\frac{84}{16}$ _____
20. 6 to 36 _____
21. 13 : 100 _____
22. $\frac{16}{40}$ _____

Find the missing value to show equivalent ratios.

23. $\frac{1}{3} = \frac{\quad}{15}$
24. $\frac{2}{3} = \frac{\quad}{9}$
25. $\frac{4}{5} = \frac{\quad}{20}$
26. $\frac{3}{4} = \frac{\quad}{24}$
27. $\frac{12}{16} = \frac{\quad}{4}$
28. $\frac{4}{36} = \frac{\quad}{9}$
29. $\frac{8}{32} = \frac{\quad}{4}$
30. $\frac{9}{12} = \frac{\quad}{4}$
31. $\frac{3}{5} = \frac{\quad}{25}$
32. $\frac{21}{7} = \frac{\quad}{1}$
33. $\frac{110}{120} = \frac{\quad}{12}$
34. $\frac{3}{7} = \frac{\quad}{28}$

Problem Solving

35. There are 18 girls and 12 boys in Ms. Lorenzo's class.
What is the ratio in simplest form of boys to girls? _____
36. Tammy has 64 baseball cards and Ricardo has 100. What
is the ratio in simplest form of the number of cards that
Tammy has to the number of cards that Ricardo has? _____

Proportions

Name _____

Date _____

Do $\frac{1}{7}$ and $\frac{2}{14}$ form a proportion?

$$\frac{1}{7} = \frac{2}{14}$$

$$\frac{1}{7} \neq \frac{2}{14}$$

$$1 \times 14 = 7 \times 2$$

$$14 = 14$$

So $\frac{1}{7} = \frac{2}{14}$ is a proportion.

$$\frac{1}{3} = \frac{n}{12}$$

To find n use equivalent ratios.

$$\frac{1}{3} = \frac{n}{12} \rightarrow \frac{1 \times 4}{3 \times 4} = \frac{4}{12}$$

Or, you can use the cross-products rule.

$$\frac{1}{3} \neq \frac{n}{12} \rightarrow 3 \times n = 1 \times 12$$

$$3 \times 4 = 12$$

So $n = 4$.

Do the two given ratios form a proportion? Write Yes or No.

1. $\frac{5}{6}, \frac{15}{18}$ _____
2. $\frac{3}{4}, \frac{9}{16}$ _____
3. $\frac{2}{5}, \frac{5}{2}$ _____
4. $\frac{3}{7}, \frac{6}{14}$ _____
5. $\frac{1}{4}, \frac{3}{12}$ _____
6. $\frac{28}{21}, \frac{4}{3}$ _____
7. $\frac{18}{9}, \frac{9}{3}$ _____
8. $\frac{15}{20}, \frac{3}{4}$ _____

Use the cross-products rule to find out which of these are proportions.
Write Yes or No.

9. $\frac{4}{10} = \frac{12}{30}$ _____
10. $\frac{1}{2} = \frac{8}{16}$ _____
11. $\frac{2}{3} = \frac{4}{9}$ _____
12. $\frac{3}{5} = \frac{9}{15}$ _____
13. $\frac{6}{12} = \frac{18}{36}$ _____
14. $\frac{18}{24} = \frac{6}{12}$ _____
15. $\frac{16}{20} = \frac{4}{5}$ _____
16. $\frac{6}{10} = \frac{18}{30}$ _____

Find the missing number in the proportion.

17. $\frac{2}{7} = \frac{4}{n}$ _____
18. $\frac{5}{6} = \frac{n}{18}$ _____
19. $\frac{3}{5} = \frac{n}{45}$ _____
20. $\frac{4}{n} = \frac{12}{60}$ _____
21. $\frac{1}{3} = \frac{13}{n}$ _____
22. $\frac{1}{7} = \frac{12}{n}$ _____
23. $\frac{n}{8} = \frac{1}{3}$ _____
24. $\frac{n}{7} = \frac{1}{5}$ _____
25. $\frac{1 \text{ case}}{4 \text{ cases}} = \frac{12 \text{ bottles}}{n \text{ bottles}}$ _____
26. $\frac{3 \text{ goldfish}}{9 \text{ goldfish}} = \frac{2 \text{ guppies}}{n \text{ guppies}}$ _____

Problem Solving

27. Three goldfish cost \$2.00. How many goldfish will \$10.00 buy? _____
28. If 2 plums cost \$.28, how much do 12 plums cost? _____
29. If oranges cost \$2.40 a dozen, how much do 2 oranges cost? _____
30. If 2 cups of rice serve 5 people, how many cups of rice do you need to serve 60 people? _____

Relate Fractions to Percents

Name _____

Date _____

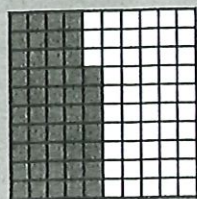
In the 100-square grid, 47 squares are shaded.

Write the fraction as a percent:

$$\frac{9}{20} = ?$$

$$\frac{9}{20} = \frac{9 \times 5}{20 \times 5} = \frac{45}{100} = 45\%$$

$$\frac{9}{20} = 45\%$$

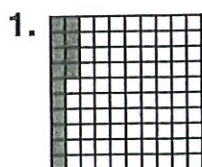


$\frac{47}{100}$ of the grid is shaded.

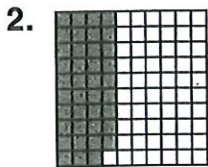
$$\frac{47}{100} = 47\%$$

So 47% of the grid is shaded.

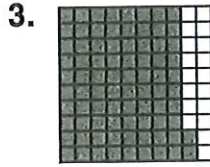
Tell what fractional part of the grid is shaded. Then write the fraction as a percent.



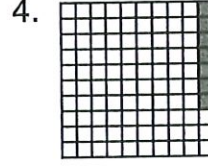
$$\frac{\quad}{100} = \quad\%$$



$$\frac{\quad}{100} = \quad\%$$



$$\frac{\quad}{100} = \quad\%$$



$$\frac{\quad}{100} = \quad\%$$

Write as a percent.

5. $\frac{4}{5} = \quad\%$

6. $\frac{19}{25} = \quad\%$

7. $\frac{1}{4} = \quad\%$

8. $\frac{6}{10} = \quad\%$

9. 4 out of 20 = $\quad\%$

10. 7 out of 50 = $\quad\%$

11. 8 out of 25 = $\quad\%$

Write as a fraction with a denominator of 100.

12. 87% = $\frac{\quad}{100}$

13. 25% = $\frac{\quad}{100}$

14. 2% = $\frac{\quad}{100}$

15. 17% = $\frac{\quad}{100}$

16. 33% = $\frac{\quad}{100}$

17. 56% = $\frac{\quad}{100}$

18. 66% = $\frac{\quad}{100}$

19. 1% = $\frac{\quad}{100}$

Write as a fraction in simplest form.

20. 25% = $\frac{\quad}{\quad}$

21. 8% = $\frac{\quad}{\quad}$

22. 20% = $\frac{\quad}{\quad}$

23. 60% = $\frac{\quad}{\quad}$

24. 10% = $\frac{\quad}{\quad}$

25. 15% = $\frac{\quad}{\quad}$

26. 75% = $\frac{\quad}{\quad}$

27. 17% = $\frac{\quad}{\quad}$

Problem Solving

28. In a tile design of 100 tiles, 39 of the tiles are red. What percent of the tiles are red?

29. A survey showed that 85 out of 100 people questioned were happy with the mayor of the town. What percent of the people questioned were happy with the mayor?

30. In a group of 100 children, 48 had brown hair. What percent of the children had brown hair?

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Relate Percents to Decimals

Name _____

Date _____

Percent Fraction Decimal

$$37\% \rightarrow \frac{37}{100} \rightarrow 0.37$$

$$2\% \rightarrow \frac{2}{100} \rightarrow 0.02$$

Decimal Fraction Percent

$$0.43 \rightarrow \frac{43}{100} \rightarrow 43\%$$

$$0.07 \rightarrow \frac{7}{100} \rightarrow 7\%$$

Write 7 dimes as a percent of a dollar.

$$7 \times \$0.10 = \$0.70$$

$$0.70 = 70\%$$

So 7 dimes is 70% of a dollar.

Write as a fraction and a decimal.

- | | | | |
|--------------|---------------|---------------|---------------|
| 1. 43% _____ | 2. 16% _____ | 3. 10% _____ | 4. 33% _____ |
| 5. 1% _____ | 6. 72% _____ | 7. 18% _____ | 8. 68% _____ |
| 9. 14% _____ | 10. 25% _____ | 11. 52% _____ | 12. 77% _____ |

Write as a fraction and a percent.

- | | | | |
|----------------|----------------|----------------|----------------|
| 13. 0.47 _____ | 14. 0.05 _____ | 15. 0.71 _____ | 16. 0.99 _____ |
| 17. 0.08 _____ | 18. 0.17 _____ | 19. 0.54 _____ | 20. 0.09 _____ |
| 21. 0.64 _____ | 22. 0.59 _____ | 23. 0.36 _____ | 24. 0.85 _____ |

Write each as a percent of a dollar.

- | | | |
|---------------------------------|------------------------------------|----------------------|
| 25. 8 dimes _____ | 26. 7 nickels _____ | 27. 4 pennies _____ |
| 28. 3 quarters _____ | 29. 73 pennies _____ | 30. 1 quarter _____ |
| 31. 5 dimes _____ | 32. 3 nickels _____ | 33. 18 pennies _____ |
| 34. 1 quarter, 7 nickels _____ | 35. 3 dimes, 7 pennies _____ | |
| 36. 11 nickels, 4 pennies _____ | 37. 1 half dollar, 3 nickels _____ | |

Problem Solving

38. Ron spent 43¢. What percent of a dollar did he spend?

39. Luis added 0.38 liters of water to a solution he was mixing in chemistry class. What percent of a liter of water did he use?

40. Wynton sprinted 0.65 the length of a 100-meter long soccer field. What percent of the length of the field did he sprint?

Find the Percent of a Number

Name _____

Date _____

$$45\% \text{ of } 80 = n$$

Use Decimals or **Use Fractions**

$$45\% = 0.45$$

$$0.45 \times 80 = 36$$

So 45% of 80 is 36.

$$45\% = \frac{45}{100} = \frac{9}{20}$$

$$\frac{9}{20} \times \frac{4}{80} = 36$$

Estimate: 26% of 397

$$25\% \text{ of } 400 = 25\% \times 400$$

$$= \frac{1}{4} \times \frac{400}{1}$$

$$= 100$$

So 26% of 397 is about 100.

Find the percent of the number.

- | | | |
|----------------------|----------------------|----------------------|
| 1. 45% of 40 _____ | 2. 15% of 60 _____ | 3. 60% of 40 _____ |
| 4. 20% of 90 _____ | 5. 7% of 300 _____ | 6. 8% of 350 _____ |
| 7. 50% of 86 _____ | 8. 25% of 44 _____ | 9. 10% of 70 _____ |
| 10. 15% of 480 _____ | 11. 45% of 200 _____ | 12. 90% of 450 _____ |

Estimate the percent of the number.

- | | | |
|----------------------|----------------------|----------------------|
| 13. 73% of 380 _____ | 14. 27% of 600 _____ | 15. 81% of 230 _____ |
| 16. 32% of 150 _____ | 17. 32% of 550 _____ | 18. 65% of 260 _____ |
| 19. 78% of 310 _____ | 20. 16% of 125 _____ | 21. 9% of 295 _____ |

Compare. Use <, =, or >.

- | | | | |
|----------------------|------------------|---------------------|-----------------|
| 22. 20% of 50 _____ | 25% of 100 _____ | 23. 40% of 60 _____ | 60% of 40 _____ |
| 24. 80% of 20 _____ | 75% of 20 _____ | 25. 20% of 20 _____ | 50% of 40 _____ |
| 26. 35% of 500 _____ | 45% of 500 _____ | 27. 60% of 60 _____ | 90% of 40 _____ |

Problem Solving

28. Don had 280 baseball cards. He gave 15% of them to his sister. How many cards did Don give to his sister?

29. There were 600 tickets sold for the dance recital. Trixie sold 5% of all tickets sold. How many tickets did Trixie sell?

Use Percent

Name _____

Date _____

A sale on sweaters offers a discount of 15% off the regular price of \$40.00. How much is the discount?

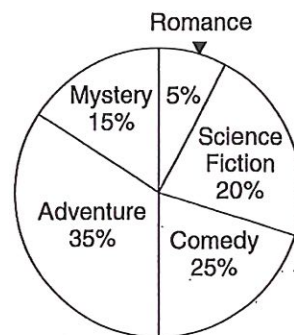
Rate of Discount	×	Regular Price	=	Discount
↓	↓	↓		↓
15%	of	\$40.00	=	n
0.15	×	\$40.00	=	\$6.00

$n = \$6.00$ The discount is \$6.00.

Use the circle graph at right to complete the table.
Entertainment Plus rented 480 videotapes last week.

	Videotape	Percent	Number of Tapes Rented
1.	Adventure		
2.	Mystery		
3.	Romance		
4.	Comedy		
5.	Science Fiction		

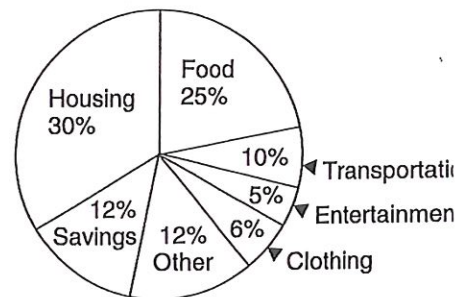
Weekly Rental



Jaclyn earns \$2000 a month.
How much does she spend on each?

- | | |
|-------------------------|-------------------------|
| 6. Housing _____ | 7. Food _____ |
| 8. Savings _____ | 9. Transportation _____ |
| 10. Entertainment _____ | 11. Clothing _____ |

Monthly Expenses



Find the discount for each item.

	Item	Regular Price	Rate of Discount	Discount
12.	sweater	\$64	15%	
13.	jacket	\$250	35%	
14.	sweat suit	\$50	8%	
15.	jump suit	\$125	20%	

Problem Solving

16. Computers with a regular price of \$1980 are offered at a 12% discount. What is the discount? _____
17. Printers with a regular price of \$320 are offered at a 7% discount. What is the discount? _____

Addition and Subtraction Equations

Name _____

Date _____

$$n + 16 = 30$$

$$n = 30 - 16$$

$$n = 14$$

Subtract 16 from both sides.

$$x - 29 = 57$$

$$x = 57 + 29$$

$$x = 86$$

Add 29 to both sides.

Solve and check each addition equation.

1. $34 + x = 69$ _____

3. $n = 9 + 8$ _____

5. $43 = r + 7.3$ _____

7. $11 = 10 + y$ _____

9. $a + 19 = 28$ _____

11. $p + 62.56 = 90.31$ _____

13. $0.8 = t + 0.2$ _____

2. $e + 5 = 19$ _____

4. $c + 21 = 21$ _____

6. $28.08 + 8 = f$ _____

8. $14.31 + w = 70$ _____

10. $b = 12 + 8$ _____

12. $76.94 = 14.72 + s$ _____

14. $1.5 + d = 2$ _____

Solve and check each subtraction equation.

15. $a - 12 = 9$ _____

17. $8.56 - h = 4.55$ _____

19. $q - 1.75 = 5.75$ _____

21. $t - 0.75 = 0.5$ _____

23. $74.3 - f = 17.5$ _____

25. $5.04 - j = 3.91$ _____

27. $13 - r = 6.303$ _____

16. $40 - w = 24$ _____

18. $77 - m = 60$ _____

20. $101 - e = 39$ _____

22. $2.7 = u - 7.1$ _____

24. $7.023 - k = 4.15$ _____

26. $3.5 - p = 1.25$ _____

28. $d - 4.001 = 5.999$ _____

Problem Solving

29. Rodney had his 6th birthday 7 years ago. How old is Rodney now? _____

30. If Rosa were 6 inches taller she would be the same height as her mother. Her mother is 5 feet 7 inches. How tall is Rosa? _____

Multiplication and Division Equations

Name _____

Date _____

$$15x = 780$$

$$\frac{15x}{15} = \frac{780}{15}$$

$$x = 52$$

Divide both sides by 15.

$$\frac{y}{14} = 38$$

$$\frac{y}{14} \cdot 14 = 38 \cdot 14$$

$$y = 532$$

Multiply both sides by 14.

Solve and check each multiplication equation.

1. $12c = 144$ _____

2. $60 = 4(e)$ _____

3. $9 \cdot r = 117$ _____

4. $49 = 7t$ _____

5. $3u = 90$ _____

6. $69 = w \times 23$ _____

7. $n(29.06) = 0$ _____

8. $280.7 = 7g$ _____

9. $y \times 5 = 7.505$ _____

10. $10.4i = 124.8$ _____

11. $47.92(v) = 47.92$ _____

12. $12.35m = 6.175$ _____

Solve and check each division equation.

13. $\frac{p}{7} = 4$ _____

14. $\frac{y}{3} = 9$ _____

15. $\frac{n}{2} = 13$ _____

16. $\frac{r}{5} = 9$ _____

17. $\frac{h}{7} = 6$ _____

18. $\frac{c}{16} = 18$ _____

19. $\frac{u}{12} = 11$ _____

20. $\frac{g}{320} = 8$ _____

21. $\frac{a}{45} = 12$ _____

22. $\frac{w}{1} = 25$ _____

23. $\frac{j}{73} = 0$ _____

24. $\frac{v}{8} = 1.01$ _____

Problem Solving

25. Georgia has $\frac{1}{3}$ of money she needs to buy a dress. If the dress costs \$66.27, how much money does Georgia have? _____

26. Roy averaged half as many points per game as Carl. If Roy averaged 9.4 points a game, how many did Carl average? _____

Subtract Integers

Name _____

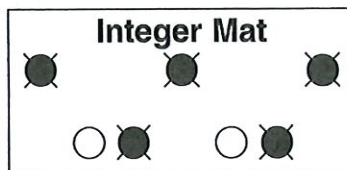
Date _____

Subtracting an integer is the same as adding the opposite of that integer.

Subtract: $-3 - -5 = n$

$$\begin{array}{c} \swarrow \quad \searrow \\ -3 - -5 = -3 + +5 \\ \uparrow \quad \uparrow \\ -3 - -5 = +2 \end{array}$$

$$-3 - -5 = +2 \quad n = +2$$



Key
 1 ○ = +1
 1 ● = -1

$$+1 + -1 = 0$$

zero pair: ○ ●

Rewrite each as an addition expression. Then add.

1. $-7 - +2$ _____
2. $+6 - -2$ _____
3. $-9 - -7$ _____
4. $-12 - -14$ _____
5. $+18 - -5$ _____
6. $-10 - -10$ _____
7. $-5 - +4$ _____
8. $+8 - -11$ _____
9. $+7 - +8$ _____

Subtract. Use counters to help you.

10. $+6 - -8$ _____
11. $-9 - -2$ _____
12. $-6 - -11$ _____
13. $-4 - -6$ _____
14. $+6 - +2$ _____
15. $-1 - -5$ _____

Circle the letter of the correct answer.

16. $-12 - -1$ a. -13 b. -11 c. $+13$ d. -11
17. $0 - -13$ a. -13 b. $+13$ c. 0 d. -1
18. $-7 - -7$ a. 0 b. -14 c. $+14$ d. $+1$

Problem Solving

19. On a winter day, the temperature dropped from -3°C to -11°C . Find the change in temperature.

20. Kay lives 4 blocks north of school. Joe lives 7 blocks south of school. What is the distance between Kay's house and Joe's house?

Multiply Integers

Name _____

Date _____

The product of two integers:

is *positive* if they have the *same* sign.

$$+5 \times +2 = +10$$

$$-4 \times -3 = +12$$

is *negative* if they have *different* signs

$$-5 \times +2 = -10$$

$$+4 \times -3 = -12$$

is *zero* if one or both is *zero*.

$$0 \times -2 = 0$$

$$0 \times +2 = 0$$

$$0 \times 0 = 0$$

Use the rules above to find each product.

1. $-6 \times +3$ _____ 2. -9×0 _____ 3. $+10 \times -3$ _____ 4. -10×-5 _____

5. $-3 \times +3$ _____ 6. $+3 \times +3$ _____ 7. -3×-3 _____ 8. $0 \times +3$ _____

9. -9×-3 _____ 10. $+6 \times +3$ _____ 11. $-4 \times +5$ _____ 12. $+8 \times +3$ _____

Let p = positive integer and n = negative integer.

Choose a. positive, b. negative, or c. zero to complete each statement. Explain each answer.

13. $n \times p =$ _____ 14. $(n \times p) \times p =$ _____ 15. $(0 \times n) \times p =$ _____

16. $n \times 0 =$ _____ 17. $(p \times p) \times p =$ _____ 18. $n \times (n \times n) =$ _____

Compute. Use the order of operations.

19. $-5(+7 + +2)$ _____ 20. $+3(-1 + -2)$ _____ 21. $-8(-9 + +3)$ _____

22. $-4(+6 + -3)$ _____ 23. $+2(-5 + +1)$ _____ 24. $+3(-2 + -7)$ _____

Problem Solving

25. A healthcare stock gains 2 points each day for five days. What is the net gain over the five days?

26. A pipe was leaking water at a rate of 5 gallons an hour. What was the net loss of water over a four-hour period?

Function Tables

Name _____

Date _____

Let $m = 1$ month. Let $\frac{m}{12}$ = number of years.

m	5	11	12	36	60
$\frac{m}{12}$	$\frac{5}{12}$	$\frac{11}{12}$	$\frac{12}{12} = 1$	$\frac{36}{12} = 3$	$\frac{60}{12} = 5$

Use the rule to complete each function table.

1. Let s = weight of fruit in pounds. Let $s + 4$ = weight of fruit plus weight of box.

s	12	29	35	51	68
$s + 4$					

2. Let z = number of books. Let $\$7z$ = total cost.

z	1	3	5	7	9
$\$7z$					

3. Let b = perimeter of garden. Let $\frac{b}{4}$ = length of one side of garden.

b	16	40	52	64	100
$\frac{b}{4}$					

Write the rule for each function table.

4.

a	?
3	12
5	20
8	32
12	48

5.

r	?
2	15
4	17
7	20
9	22

6.

f	?
75	15
40	8
15	3
5	1

Function and Coordinate Graphs

Name _____

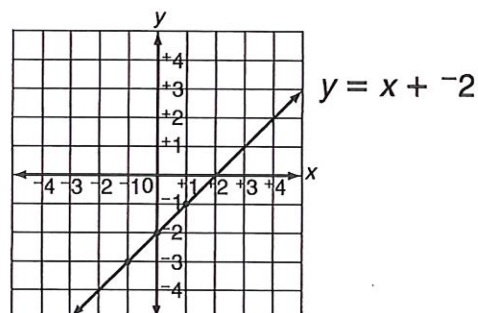
Date _____

Graph the function $y = x + -2$ on a coordinate plane.

• Make a function table.

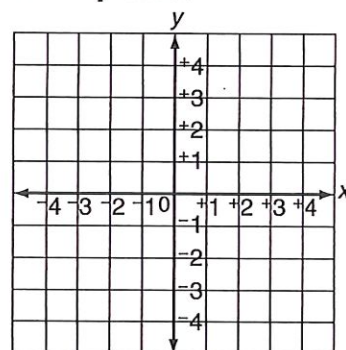
• Graph each ordered pair. Connect the points.

x	$y = x + -2$	y	(x, y)
-1	$y = -1 + -2$	-3	$(-1, -3)$
0	$y = 0 + -2$	-2	$(0, -2)$
+1	$y = +1 + -2$	-1	$(+1, -1)$



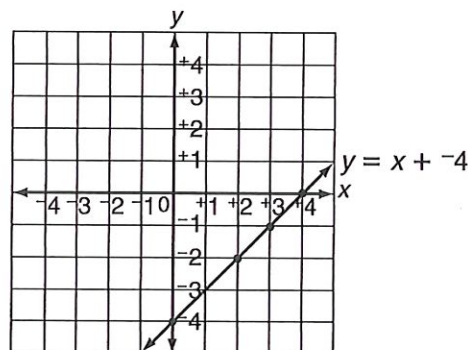
1. Complete the function table. Then graph on the coordinate plane.

x	$y = x + -1$	y	(x, y)
-1			
0			
+2			



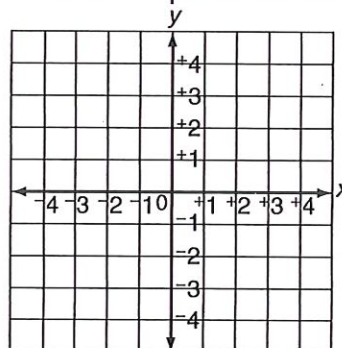
Use the given graph of $y = x + -4$.

- When $x = 0$, what is the value of y ? _____
- When $x = +2$, what is the value of y ? _____
- For what value of x is $y = -1$? _____
- For what value of x is $y = 0$? _____



Problem Solving

- 6.** A meteorologist discovered that a storm is following a path on her map made by the equation $y = x + -3$. Will the storm pass through the point $(+2, 0)$? Make a function table. Then graph on a coordinate plane to answer.



Order of Operations

Name CCSS: 5.OA.1

Date _____

Compute: $(80 \div 2) - 2 \times (3 \times 5)$

- Do the operations within parentheses first.
- Multiply or divide from left to right.
- Add or subtract from left to right.

$$\begin{array}{rcl} (80 \div 2) - 2 \times (3 \times 5) & & \\ \downarrow & & \downarrow \\ 40 - 2 \times 15 & & \\ & & \downarrow \\ 40 - 30 & & \\ 40 - 30 = 10 & & \end{array}$$

Use the order of operations to compute.

1. $5 - 8 \div 2 + 7$ 8

2. $20 \div 4 + 3 \times 6$ 23

3. $(8 \times 7) + (56 \div 8)$ 63

4. $(42 - 12) \div (7 + 3)$ 3

5. $30 + 18 \div 3 - 12$ 24

6. $24 - 9 \div 3 \times 5$ 9

7. $2 + 6 \times 10 \div 30 + 7$ 11

8. $19 + 63 \div 9 \times 3 - 13$ 27

9. $59 - 35 \div 7 \times 4 + 53$ 92

10. $50 - 12 \div 3 \times 2$ 42

11. $20 \div 4 - 4 + (81 \div 9)$ 10

12. $25 - 6 \times 4 + (23 - 3) - 4$ 17

13. $(42 - 6) + 5 - 3 + (8 \times 3)$ 62

14. $3 + (37 - 1) \div 9 + (18 \div 3)$ 28

15. $(5 \times 9) \div 5 + (8 \div 8)$ 10

16. $(64 \div 8) - 5 + (33 \times 3)$ 102

17. $(35 - 10) \div (4 + 1)$ 5

18. $20 + 6 \div (4 - 2)$ 23

19. $(6 \times 9) + (63 \div 7)$ 63

20. $32 \div 8 + 4 + (6 \times 0)$ 8

21. $(42 + 10) \div (4 \div 2)$ 26

22. $(55 - 15) \div (5 \times 2)$ 4

23. $(8 \times 8) + (9 \times 1)$ 73

24. $35 \div 7 + 5 - (7 \times 1)$ 3

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More Renaming in Subtraction

Name _____ CCSS: 5.NF.1; 5.NF.2

Date _____

Subtract: $5\frac{1}{3} - 3\frac{5}{6} = n$

$$\begin{array}{r} 5\frac{1}{3} = 5\frac{4}{12} \\ - 3\frac{5}{6} = -3\frac{10}{12} \\ \hline \end{array}$$

$$\begin{array}{l} 5\frac{4}{12} = 4 + 1 + \frac{4}{12} \\ = 4 + \frac{12}{12} + \frac{4}{12} \\ = 4 + \frac{16}{12} \end{array}$$

$$\begin{array}{r} 4\frac{16}{12} \\ - 3\frac{10}{12} \\ \hline 1\frac{6}{12} = 1\frac{1}{2} \quad n = 1\frac{1}{2} \end{array}$$

Rename each mixed number.

$$\begin{array}{l} 1. \quad 6\frac{3}{4} = 5 + 1 + \frac{3}{4} \\ = 5 + \frac{4}{4} + \frac{3}{4} \\ = 5\frac{7}{4} \end{array}$$

$$\begin{array}{l} 2. \quad 4\frac{7}{10} = \underline{3} + 1 + \frac{7}{10} \\ = \underline{3} + \frac{10}{10} + \frac{7}{10} \\ = \underline{3}\frac{17}{10} \end{array}$$

$$\begin{array}{l} 3. \quad 9\frac{5}{8} = 8 + \frac{8}{8} + \frac{5}{8} \\ = \underline{8} + \frac{8}{8} + \frac{5}{8} \\ = \underline{8}\frac{13}{8} \end{array}$$

Subtract.

$$\begin{array}{r} 4. \quad 6\frac{3}{4} \\ - 2\frac{7}{8} \\ \hline \underline{3\frac{7}{8}} \end{array}$$

$$\begin{array}{r} 5. \quad 5\frac{1}{6} \\ - 2\frac{1}{2} \\ \hline \underline{2\frac{2}{3}} \end{array}$$

$$\begin{array}{r} 6. \quad 5\frac{1}{4} \\ - \frac{3}{8} \\ \hline \underline{4\frac{7}{8}} \end{array}$$

$$\begin{array}{r} 7. \quad 9\frac{2}{3} \\ - 7\frac{5}{6} \\ \hline \underline{1\frac{5}{6}} \end{array}$$

$$\begin{array}{r} 8. \quad 7\frac{1}{2} \\ - \frac{4}{5} \\ \hline \underline{6\frac{7}{10}} \end{array}$$

$$\begin{array}{r} 9. \quad 4\frac{3}{4} \\ - 3\frac{5}{6} \\ \hline \underline{1\frac{11}{12}} \end{array}$$

$$\begin{array}{r} 10. \quad 8\frac{1}{3} \\ - 4\frac{7}{8} \\ \hline \underline{3\frac{11}{24}} \end{array}$$

$$\begin{array}{r} 11. \quad 3\frac{3}{9} \\ - 1\frac{5}{6} \\ \hline \underline{1\frac{1}{2}} \end{array}$$

$$\begin{array}{r} 12. \quad 11\frac{1}{12} \\ - 2\frac{5}{12} \\ \hline \underline{8\frac{2}{3}} \end{array}$$

$$\begin{array}{r} 13. \quad 8\frac{1}{4} \\ - 1\frac{9}{14} \\ \hline \underline{6\frac{17}{28}} \end{array}$$

$$\begin{array}{r} 14. \quad 6\frac{5}{8} \\ - 1\frac{4}{5} \\ \hline \underline{4\frac{33}{40}} \end{array}$$

$$\begin{array}{r} 15. \quad 7\frac{5}{9} \\ - 6\frac{5}{6} \\ \hline \underline{1\frac{13}{18}} \end{array}$$

$$\begin{array}{r} 16. \quad 9\frac{5}{6} \\ - 2\frac{7}{8} \\ \hline \underline{6\frac{23}{24}} \end{array}$$

$$\begin{array}{r} 17. \quad 12\frac{5}{7} \\ - 9\frac{5}{6} \\ \hline \underline{2\frac{37}{42}} \end{array}$$

$$\begin{array}{r} 18. \quad 9\frac{1}{8} \\ - 3\frac{5}{12} \\ \hline \underline{5\frac{17}{24}} \end{array}$$

$$19. \quad 8\frac{2}{3} - 6\frac{3}{4} = \underline{1\frac{11}{12}}$$

$$20. \quad 4\frac{1}{5} - \frac{4}{5} = \underline{3\frac{2}{5}}$$

$$21. \quad 3\frac{3}{8} - 2\frac{9}{10} = \underline{\frac{19}{40}}$$

$$22. \quad 10\frac{1}{5} - \frac{12}{15} = \underline{9\frac{2}{5}}$$

$$23. \quad 7\frac{1}{2} - \frac{9}{12} = \underline{6\frac{3}{4}}$$

$$24. \quad 9\frac{1}{4} - \frac{5}{6} = \underline{8\frac{5}{12}}$$

Problem Solving

25. Mr. Lin drove $18\frac{1}{2}$ mi to work. Then he moved $6\frac{8}{10}$ mi closer to work. How far does he drive to work now?

$$\begin{array}{r} 18\frac{1}{2} - 6\frac{8}{10} = 11\frac{7}{10} \\ \underline{11\frac{7}{10} \text{ mi}} \end{array}$$

Areas of Rectangles and Squares

CCSS: 5.NF.4b

Name _____

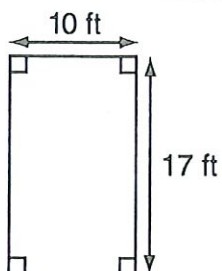
Date _____

Rectangles

$$A = \ell \times w$$

$$A = 17 \text{ ft} \times 10 \text{ ft}$$

$$A = 170 \text{ ft}^2$$

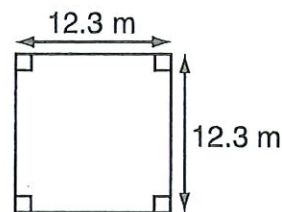


Squares

$$A = s \times s = s^2$$

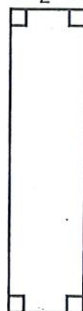
$$A = 12.3 \text{ m} \times 12.3 \text{ m}$$

$$A = 151.29 \text{ m}^2$$



Find the area of each rectangle.

1. $2\frac{1}{2} \text{ ft}$

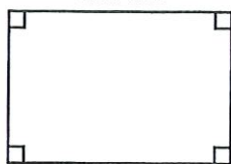


$$8\frac{1}{5} \text{ ft}$$

$$20\frac{1}{2} \text{ ft}^2$$

2.

$$6.4 \text{ km}$$

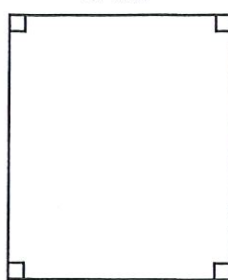


$$4.9 \text{ km}$$

$$31.36 \text{ km}^2$$

3.

$$6 \text{ cm}$$

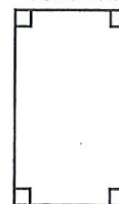


$$7\frac{1}{2} \text{ cm}$$

$$45 \text{ cm}^2$$

4.

$$15.6 \text{ mm}$$



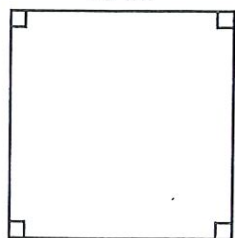
$$25.4 \text{ mm}$$

$$396.24 \text{ mm}^2$$

Find the area of each square.

5.

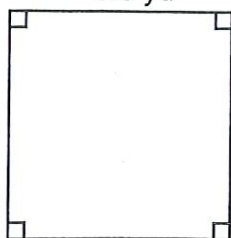
$$13 \text{ in.}$$



$$169 \text{ in.}^2$$

6.

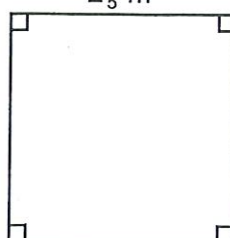
$$8.8 \text{ yd}$$



$$77.44 \text{ yd}^2$$

7.

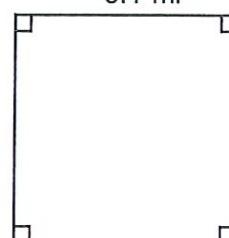
$$2\frac{1}{5} \text{ m}$$



$$4\frac{21}{25} \text{ m}^2$$

8.

$$6.1 \text{ mi}$$



$$37.21 \text{ mi}^2$$

Find the area of each square or rectangle.

9. 7.3 dm long
3.9 dm wide

$$A = 28.47 \text{ dm}^2$$

10. $s = 6\frac{1}{8} \text{ in.}$

$$A = 37\frac{33}{64} \text{ in.}^2$$

11. 22 mm long
18 mm wide

$$A = 396 \text{ mm}^2$$

12. $s = 4.9 \text{ cm}$

$$A = 24.01 \text{ cm}^2$$

13. 29 yd long
 $9\frac{3}{4} \text{ yd wide}$

$$A = 282\frac{3}{4} \text{ yd}^2$$

14. $s = 9.6 \text{ m}$

$$A = 92.16 \text{ m}^2$$

15. 2 km long
0.5 km wide

$$A = 1 \text{ km}^2$$

16. $s = 8\frac{1}{2} \text{ ft}$

$$A = 72\frac{1}{4} \text{ ft}^2$$

Areas of Parallelograms and Triangles

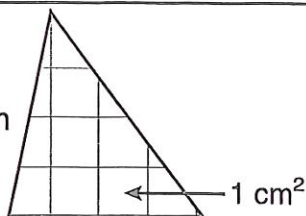
Name _____

Date _____

$$A = \frac{1}{2} \times b \times h$$

$$A = \frac{1}{2} \times 4 \text{ cm} \times 4 \text{ cm}$$

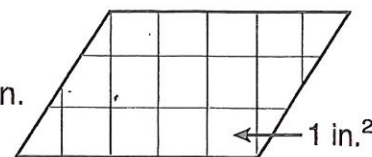
$$A = 8 \text{ cm}^2$$



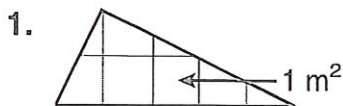
$$A = b \times h$$

$$A = 5 \text{ in.} \times 3 \text{ in.}$$

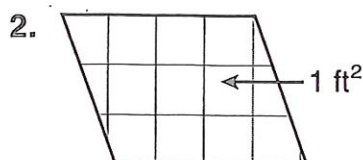
$$A = 15 \text{ in.}^2$$



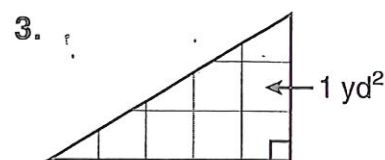
Find the area.



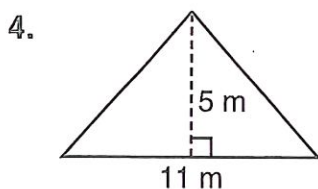
$$A = 5 \text{ m}^2$$



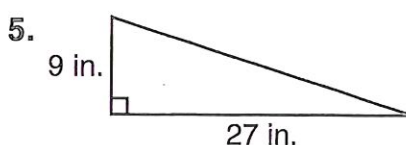
$$A = 12 \text{ ft}^2$$



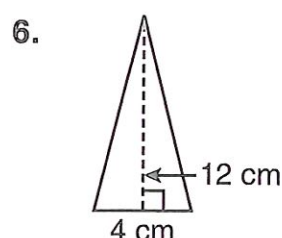
$$A = 7\frac{1}{2} \text{ yd}^2$$



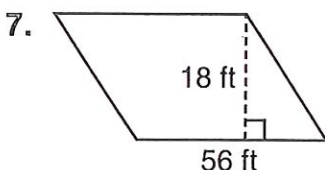
$$A = 27\frac{1}{2} \text{ m}^2$$



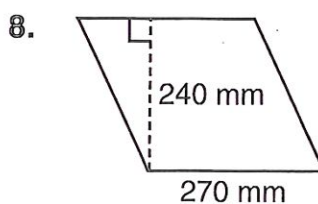
$$A = 121\frac{1}{2} \text{ in.}^2$$



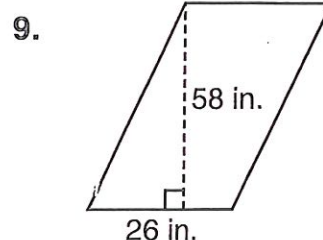
$$A = 24 \text{ cm}^2$$



$$A = 1008 \text{ ft}^2$$



$$A = 64,800 \text{ mm}^2$$



$$A = 1508 \text{ in.}^2$$

Problem Solving

10. A square measures 14 in. along one side. A parallelogram has a base of 18 in. and a height of 10 in. Which figure has the greater area?

$$\begin{aligned} \text{square: } A &= 14 \text{ in.} \times 14 \text{ in.} = 196 \text{ in.}^2; \\ \text{parallelogram: } A &= 18 \text{ in.} \times 10 \text{ in.} = 180 \text{ in.}^2; \\ 196 &> 180; \text{ square} \end{aligned}$$

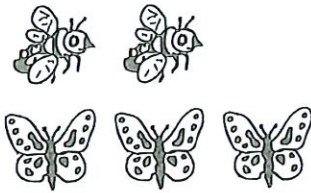
11. A parallelogram has a base of 32 cm and a height of 25 cm. A triangle has a base of 66 cm and a height of 25 cm. Which figure has the greater area? by how much?

$$\begin{aligned} \text{parallelogram: } A &= 32 \text{ cm} \times 25 \text{ cm} = 800 \text{ cm}^2; \\ \text{triangle: } A &= \frac{1}{2} \text{ cm} \times 66 \text{ cm} \times 25 \text{ cm} = 825 \text{ cm}^2; \\ 825 &> 800; \text{ triangle; } 825 - 800 &= 25; \\ &25 \text{ cm}^2 \text{ greater} \end{aligned}$$

Ratios as Fractions

Name _____

Date _____



The ratio of bees to butterflies is
2 to 3 or 2 : 3 or $\frac{2}{3}$.

The ratio of butterflies to bees is
3 to 2 or 3 : 2 or $\frac{3}{2}$.

Equivalent Ratios

$$\frac{4}{6} = n$$

$$\frac{4}{6} = \frac{4 \times 2}{6 \times 2} = \frac{8}{12}$$

or

$$\frac{4}{6} = \frac{4 \div 2}{6 \div 2} = \frac{2}{3}$$

So $\frac{4}{6} = \frac{8}{12} = \frac{2}{3}$ are equivalent ratios.

There are 5 dogs, 6 cats, 7 birds, 11 mice, and 2 snakes in the pet store.
Write each ratio in three ways.

1. dogs to cats $\frac{5}{6}$, 5 : 6, 5 to 6

3. birds to mice $\frac{7}{11}$, 7 : 11, 7 to 11

5. snakes to dogs $\frac{2}{5}$, 2 : 5, 2 to 5

7. mice to cats $\frac{11}{6}$, 11 : 6, 11 to 6

9. dogs to mice $\frac{5}{11}$, 5 : 11, 5 to 11

2. cats to birds $\frac{6}{7}$, 6 : 7, 6 to 7

4. mice to snakes $\frac{11}{2}$, 11 : 2, 11 to 2

6. birds to dogs $\frac{7}{5}$, 7 : 5, 7 to 5

8. snakes to birds $\frac{2}{7}$, 2 : 7, 2 to 7

10. cats to mice $\frac{6}{11}$, 6 : 11, 6 to 11

Write each ratio in simplest form.

11. 4 to 8 $\frac{1}{2}$ 12. 4 : 12 $\frac{1}{3}$ 13. $\frac{14}{7}$ $\frac{2}{1}$ 14. 16 to 32 $\frac{1}{2}$

15. 24 to 6 $\frac{4}{1}$ 16. 7 : 18 $\frac{7}{18}$ 17. 16 : 24 $\frac{2}{3}$ 18. $\frac{15}{36}$ $\frac{5}{12}$

19. $\frac{84}{16}$ $\frac{21}{4}$ 20. 6 to 36 $\frac{1}{6}$ 21. 13 : 100 $\frac{13}{100}$ 22. $\frac{16}{40}$ $\frac{2}{5}$

Find the missing value to show equivalent ratios.

23. $\frac{1}{3} = \frac{5}{15}$ 24. $\frac{2}{3} = \frac{6}{9}$ 25. $\frac{4}{5} = \frac{16}{20}$ 26. $\frac{3}{4} = \frac{18}{24}$

27. $\frac{12}{16} = \frac{3}{4}$ 28. $\frac{4}{36} = \frac{1}{9}$ 29. $\frac{8}{32} = \frac{1}{4}$ 30. $\frac{9}{12} = \frac{3}{4}$

31. $\frac{3}{5} = \frac{15}{25}$ 32. $\frac{21}{7} = \frac{3}{1}$ 33. $\frac{110}{120} = \frac{11}{12}$ 34. $\frac{3}{7} = \frac{12}{28}$

Problem Solving

35. There are 18 girls and 12 boys in Ms. Lorenzo's class.
What is the ratio in simplest form of boys to girls?

$$12 : 18 = 2 : 3$$

36. Tammy has 64 baseball cards and Ricardo has 100. What
is the ratio in simplest form of the number of cards that
Tammy has to the number of cards that Ricardo has?

$$\frac{64}{100} = \frac{16}{25}$$

Proportions

Name _____

Date _____

Do $\frac{1}{7}$ and $\frac{2}{14}$ form a proportion?

$$\frac{1}{7} \stackrel{?}{=} \frac{2}{14}$$

$$\frac{1}{7} \neq \frac{2}{14}$$

$$1 \times 14 = 7 \times 2$$

$$14 = 14$$

So $\frac{1}{7} = \frac{2}{14}$ is a proportion.

$$\frac{1}{3} = \frac{n}{12}$$

To find n use equivalent ratios.

$$\frac{1}{3} = \frac{n}{12} \rightarrow \frac{1 \times 4}{3 \times 4} = \frac{4}{12}$$

Or, you can use the cross-products rule.

$$\frac{1}{3} \neq \frac{n}{12} \rightarrow 3 \times n = 1 \times 12$$

$$3 \times 4 = 12$$

So $n = 4$.

Do the two given ratios form a proportion? Write Yes or No.

1. $\frac{5}{6}, \frac{15}{18}$ Yes 2. $\frac{3}{4}, \frac{9}{16}$ No 3. $\frac{2}{5}, \frac{5}{2}$ No 4. $\frac{3}{7}, \frac{6}{14}$ Yes

5. $\frac{1}{4}, \frac{3}{12}$ Yes 6. $\frac{28}{21}, \frac{4}{3}$ Yes 7. $\frac{18}{9}, \frac{9}{3}$ No 8. $\frac{15}{20}, \frac{3}{4}$ Yes

Use the cross-products rule to find out which of these are proportions. Write Yes or No.

9. $\frac{4}{10} = \frac{12}{30}$ $120 = 120$; Yes 10. $\frac{1}{2} = \frac{8}{16}$ $16 = 16$; Yes 11. $\frac{2}{3} = \frac{4}{9}$ $18 \neq 12$; No 12. $\frac{3}{5} = \frac{9}{15}$ $45 = 45$; Yes

13. $\frac{6}{12} = \frac{18}{36}$ $216 = 216$; Yes 14. $\frac{18}{24} = \frac{6}{12}$ $216 \neq 144$; No 15. $\frac{16}{20} = \frac{4}{5}$ $80 = 80$; Yes 16. $\frac{6}{10} = \frac{18}{30}$ $180 = 180$; Yes

Find the missing number in the proportion.

17. $\frac{2}{7} = \frac{4}{n}$ $n = 14$ 18. $\frac{5}{6} = \frac{n}{18}$ $n = 15$ 19. $\frac{3}{5} = \frac{n}{45}$ $n = 27$ 20. $\frac{4}{n} = \frac{12}{60}$ $n = 20$

21. $\frac{1}{3} = \frac{13}{n}$ $n = 4$ 22. $\frac{1}{7} = \frac{12}{n}$ $n = 9$ 23. $\frac{n}{8} = \frac{1}{3}$ $n = 2\frac{2}{3}$ 24. $\frac{n}{7} = \frac{1}{5}$ $n = 1\frac{2}{5}$

25. $\frac{1 \text{ case}}{4 \text{ cases}} = \frac{12 \text{ bottles}}{n \text{ bottles}}$ $n = 48$; 48 bottles 26. $\frac{3 \text{ goldfish}}{9 \text{ goldfish}} = \frac{2 \text{ guppies}}{n \text{ guppies}}$ $n = 6$; 6 guppies

Problem Solving

27. Three goldfish cost \$2.00. How many goldfish will \$10.00 buy? $\frac{3}{\$2.00} = \frac{n}{\$10.00}$; $n = 15$; 15 goldfish

28. If 2 plums cost \$.28, how much do 12 plums cost? $\frac{2}{\$2.8} = \frac{12}{P}$; $P = \$1.68$; \$1.68

29. If oranges cost \$2.40 a dozen, how much do 2 oranges cost? $\frac{12}{\$2.40} = \frac{2}{P}$; $P = \$.40$; \$.40

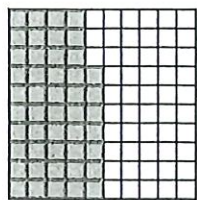
30. If 2 cups of rice serve 5 people, how many cups of rice do you need to serve 60 people? $\frac{2}{5} = \frac{c}{60}$; $c = 24$; 24 cups

Relate Fractions to Percents

Name _____

Date _____

In the 100-square grid, 47 squares are shaded.



$\frac{47}{100}$ of the grid is shaded.

$$\frac{47}{100} = 47\%$$

So 47% of the grid is shaded.

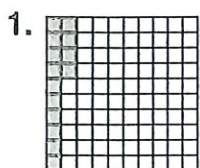
Write the fraction as a percent:

$$\frac{9}{20} = ?$$

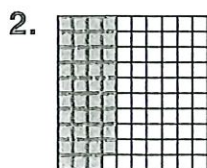
$$\frac{9}{20} = \frac{9 \times 5}{20 \times 5} = \frac{45}{100} = 45\%$$

$$\frac{9}{20} = 45\%$$

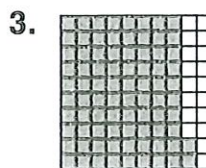
Tell what fractional part of the grid is shaded. Then write the fraction as a percent.



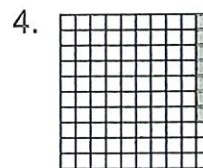
$$\frac{14}{100} = 14\%$$



$$\frac{39}{100} = 39\%$$



$$\frac{82}{100} = 82\%$$



$$\frac{7}{100} = 7\%$$

Write as a percent.

5. $\frac{4}{5} = 80\%$

6. $\frac{19}{25} = 76\%$

7. $\frac{1}{4} = 25\%$

8. $\frac{6}{10} = 60\%$

9. 4 out of 20 = 20%

10. 7 out of 50 = 14%

11. 8 out of 25 = 32%

Write as a fraction with a denominator of 100.

12. 87% $\frac{87}{100}$

13. 25% $\frac{25}{100}$

14. 2% $\frac{2}{100}$

15. 17% $\frac{17}{100}$

16. 33% $\frac{33}{100}$

17. 56% $\frac{56}{100}$

18. 66% $\frac{66}{100}$

19. 1% $\frac{1}{100}$

Write as a fraction in simplest form.

20. 25% $\frac{1}{4}$

21. 8% $\frac{2}{25}$

22. 20% $\frac{1}{5}$

23. 60% $\frac{3}{5}$

24. 10% $\frac{1}{10}$

25. 15% $\frac{3}{20}$

26. 75% $\frac{3}{4}$

27. 17% $\frac{17}{100}$

Problem Solving

28. In a tile design of 100 tiles, 39 of the tiles are red. What percent of the tiles are red?

$$\frac{39}{100} = 39\%; 39\%$$

29. A survey showed that 85 out of 100 people questioned were happy with the mayor of the town. What percent of the people questioned were happy with the mayor?

$$\frac{85}{100} = 85\%; 85\%$$

30. In a group of 100 children, 48 had brown hair. What percent of the children had brown hair?

$$\frac{48}{100} = 48\%; 48\%$$

Relate Percents to Decimals

Name _____

Date _____

Percent Fraction Decimal

$$37\% \rightarrow \frac{37}{100} \rightarrow 0.37$$

$$2\% \rightarrow \frac{2}{100} \rightarrow 0.02$$

Decimal Fraction Percent

$$0.43 \rightarrow \frac{43}{100} \rightarrow 43\%$$

$$0.07 \rightarrow \frac{7}{100} \rightarrow 7\%$$

Write 7 dimes as a percent of a dollar.

$$7 \times \$0.10 = \$0.70$$

$$0.70 = 70\%$$

So 7 dimes is 70% of a dollar.

Write as a fraction and a decimal.

1. 43% $\frac{43}{100}$, 0.43

2. 16% $\frac{16}{100}$, 0.16

3. 10% $\frac{10}{100}$, 0.10

4. 33% $\frac{33}{100}$, 0.33

5. 1% $\frac{1}{100}$, 0.01

6. 72% $\frac{72}{100}$, 0.72

7. 18% $\frac{18}{100}$, 0.18

8. 68% $\frac{68}{100}$, 0.68

9. 14% $\frac{14}{100}$, 0.14

10. 25% $\frac{25}{100}$, 0.25

11. 52% $\frac{52}{100}$, 0.52

12. 77% $\frac{77}{100}$, 0.77

Write as a fraction and a percent.

13. 0.47 $\frac{47}{100}$, 47%

14. 0.05 $\frac{5}{100}$, 5%

15. 0.71 $\frac{71}{100}$, 71%

16. 0.99 $\frac{99}{100}$, 99%

17. 0.08 $\frac{8}{100}$, 8%

18. 0.17 $\frac{17}{100}$, 17%

19. 0.54 $\frac{54}{100}$, 54%

20. 0.09 $\frac{9}{100}$, 9%

21. 0.64 $\frac{64}{100}$, 64%

22. 0.59 $\frac{59}{100}$, 59%

23. 0.36 $\frac{36}{100}$, 36%

24. 0.85 $\frac{85}{100}$, 85%

Write each as a percent of a dollar.

25. 8 dimes $\frac{80}{100}$, 80%

26. 7 nickels $\frac{35}{100}$, 35%

27. 4 pennies $\frac{4}{100}$, 4%

28. 3 quarters $\frac{75}{100}$, 75%

29. 73 pennies $\frac{73}{100}$, 73%

30. 1 quarter $\frac{25}{100}$, 25%

31. 5 dimes $\frac{50}{100}$, 50%

32. 3 nickels $\frac{15}{100}$, 15%

33. 18 pennies $\frac{18}{100}$, 18%

34. 1 quarter, 7 nickels $\frac{60}{100}$, 60%

35. 3 dimes, 7 pennies $\frac{37}{100}$, 37%

36. 11 nickels, 4 pennies $\frac{59}{100}$, 59%

37. 1 half dollar, 3 nickels $\frac{65}{100}$, 65%

Problem Solving

38. Ron spent 43¢. What percent of a dollar did he spend?

$$43¢ = \$0.43, 0.43 = \frac{43}{100}, \frac{43}{100} = 43\%; 43\%$$

39. Luis added 0.38 liters of water to a solution he was mixing in chemistry class. What percent of a liter of water did he use?

$$0.38 = \frac{38}{100}, \frac{38}{100} = 38\%; 38\%$$

40. Wynton sprinted 0.65 the length of a 100-meter long soccer field. What percent of the length of the field did he sprint?

$$0.65 = \frac{65}{100}, \frac{65}{100} = 65\%; 65\%$$

Find the Percent of a Number

Name _____

Date _____

$$45\% \text{ of } 80 = n$$

Use Decimals or

Use Fractions

$$45\% = 0.45$$

$$0.45 \times 80 = 36$$

So 45% of 80 is 36.

$$45\% = \frac{45}{100} = \frac{9}{20}$$

$$\frac{9}{20} \times \frac{4}{1} \times 80 = 36$$

Estimate: 26% of 397

$$25\% \text{ of } 400 = 25\% \times 400$$

$$= \frac{1}{4} \times \frac{400}{1}$$

$$= 100$$

So 26% of 397 is about 100.

Find the percent of the number.

- | | | |
|--------------------------|--------------------------|---------------------------|
| 1. 45% of 40 <u>18</u> | 2. 15% of 60 <u>9</u> | 3. 60% of 40 <u>24</u> |
| 4. 20% of 90 <u>18</u> | 5. 7% of 300 <u>21</u> | 6. 8% of 350 <u>28</u> |
| 7. 50% of 86 <u>43</u> | 8. 25% of 44 <u>11</u> | 9. 10% of 70 <u>7</u> |
| 10. 15% of 480 <u>72</u> | 11. 45% of 200 <u>90</u> | 12. 90% of 450 <u>405</u> |

Estimate the percent of the number. Sample estimate given. Accept reasonable estimates.

- | | | |
|---------------------------|---------------------------|---------------------------|
| 13. 73% of 380 <u>300</u> | 14. 27% of 600 <u>150</u> | 15. 81% of 230 <u>160</u> |
| 16. 32% of 150 <u>50</u> | 17. 32% of 550 <u>200</u> | 18. 65% of 260 <u>180</u> |
| 19. 78% of 310 <u>225</u> | 20. 16% of 125 <u>16</u> | 21. 9% of 295 <u>30</u> |

Compare. Use <, =, or >.

- | | | | |
|----------------------------|------------|---------------------------|-----------|
| 22. 20% of 50 <u><</u> | 25% of 100 | 23. 40% of 60 <u>=</u> | 60% of 40 |
| 24. 80% of 20 <u>></u> | 75% of 20 | 25. 20% of 20 <u><</u> | 50% of 40 |
| 26. 35% of 500 <u><</u> | 45% of 500 | 27. 60% of 60 <u>=</u> | 90% of 40 |

Problem Solving

28. Don had 280 baseball cards. He gave 15% of them to his sister. How many cards did Don give to his sister?

$$15\% \text{ of } 280 = 42;$$

$$42 \text{ cards}$$

29. There were 600 tickets sold for the dance recital. Trixie sold 5% of all tickets sold. How many tickets did Trixie sell?

$$5\% \text{ of } 600 = 30;$$

$$30 \text{ tickets}$$

Use Percent

Name _____

Date _____

A sale on sweaters offers a discount of 15% off the regular price of \$40.00. How much is the discount?

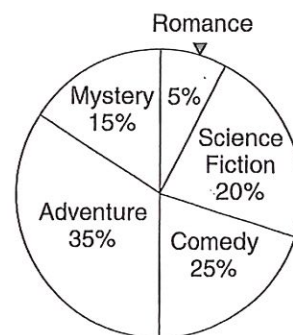
$$\begin{array}{rclcl}
 \boxed{\text{Rate of Discount}} & \times & \boxed{\text{Regular Price}} & = & \boxed{\text{Discount}} \\
 \downarrow & \downarrow & \downarrow & & \downarrow \\
 15\% & \text{of} & \$40.00 & = & n \\
 0.15 & \times & \$40.00 & = & \$6.00
 \end{array}$$

$n = \$6.00$ The discount is \$6.00.

Use the circle graph at right to complete the table.
Entertainment Plus rented 480 videotapes last week.

	Videotape	Percent	Number of Tapes Rented
1.	Adventure	35%	168
2.	Mystery	15%	72
3.	Romance	5%	24
4.	Comedy	25%	120
5.	Science Fiction	20%	96

Weekly Rental



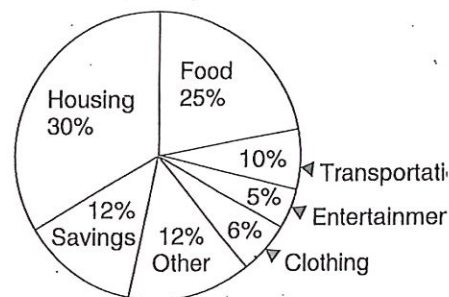
Jaclyn earns \$2000 a month.
How much does she spend on each?

6. Housing	\$600	7. Food	\$500
8. Savings	\$240	9. Transportation	\$200
10. Entertainment	\$100	11. Clothing	\$120

Find the discount for each item.

	Item	Regular Price	Rate of Discount	Discount
12.	sweater	\$64	15%	\$9.60
13.	jacket	\$250	35%	\$87.50
14.	sweat suit	\$50	8%	\$4.00
15.	jump suit	\$125	20%	\$25.00

Monthly Expenses



Problem Solving

- Computers with a regular price of \$1980 are offered at a 12% discount. What is the discount?
- Printers with a regular price of \$320 are offered at a 7% discount. What is the discount?

12% of \$1980 = \$237.60;
\$237.60 discount

7% of \$320 = \$22.40;
\$22.40 discount

Addition and Subtraction Equations

Name _____

Date _____

$$n + 16 = 30$$

$$n = 30 - 16$$

$$n = 14$$

Subtract 16 from both sides.

$$x - 29 = 57$$

$$x = 57 + 29$$

$$x = 86$$

Add 29 to both sides.

Solve and check each addition equation.

1. $34 + x = 69$

$x = 35$

3. $n = 9 + 8$

$n = 17$

5. $43 = r + 7.3$

$r = 35.7$

7. $11 = 10 + y$

$y = 1$

9. $a + 19 = 28$

$a = 9$

11. $p + 62.56 = 90.31$

$p = 27.75$

13. $0.8 = t + 0.2$

$t = 0.6$

2. $e + 5 = 19$

$e = 14$

4. $c + 21 = 21$

$c = 0$

6. $28.08 + 8 = f$

$f = 36.08$

8. $14.31 + w = 70$

$w = 55.69$

10. $b = 12 + 8$

$b = 20$

12. $76.94 = 14.72 + s$

$s = 62.22$

14. $1.5 + d = 2$

$d = 0.5$

Solve and check each subtraction equation.

15. $a - 12 = 9$

$a = 21$

17. $8.56 - h = 4.55$

$h = 4.01$

19. $q - 1.75 = 5.75$

$q = 7.50$

21. $t - 0.75 = 0.5$

$t = 1.25$

23. $74.3 - f = 17.5$

$f = 56.8$

25. $5.04 - j = 3.91$

$j = 1.13$

27. $13 - r = 6.303$

$r = 6.697$

16. $40 - w = 24$

$w = 16$

18. $77 - m = 60$

$m = 17$

20. $101 - e = 39$

$e = 62$

22. $2.7 = u - 7.1$

$u = 9.8$

24. $7.023 - k = 4.15$

$k = 2.873$

26. $3.5 - p = 1.25$

$p = 2.25$

28. $d - 4.001 = 5.999$

$d = 10$

Problem Solving

29. Rodney had his 6th birthday 7 years ago. How old is Rodney now?

$6 + 7 = 13$; 13 years old

30. If Rosa were 6 inches taller she would be the same height as her mother. Her mother is 5 feet 7 inches. How tall is Rosa?

$x + 6 \text{ in.} = 5 \text{ ft } 7 \text{ in.}$, $x = 5 \text{ feet } 1 \text{ in.}$

5 feet 1 inch

Multiplication and Division Equations

Name _____

Date _____

$$15x = 780$$

$$\frac{15x}{15} = \frac{780}{15}$$

$$x = 52$$

Divide both sides by 15.

$$\frac{y}{14} = 38$$

$$\frac{y}{14} \cdot 14 = 38 \cdot 14$$

$$y = 532$$

Multiply both sides by 14.

Solve and check each multiplication equation.

1. $12c = 144$

$c = 12$

3. $9 \cdot r = 117$

$r = 13$

5. $3u = 90$

$u = 30$

7. $n(29.06) = 0$

$n = 0$

9. $y \times 5 = 7.505$

$y = 1.501$

11. $47.92(v) = 47.92$

$v = 1$

2. $60 = 4(e)$

$e = 15$

4. $49 = 7t$

$t = 7$

6. $69 = w \times 23$

$w = 3$

8. $280.7 = 7g$

$g = 40.1$

10. $10.4i = 124.8$

$i = 12$

12. $12.35m = 6.175$

$m = 50$

Solve and check each division equation.

13. $\frac{p}{7} = 4$

$p = 28$

15. $\frac{n}{2} = 13$

$n = 26$

17. $\frac{h}{7} = 6$

$h = 42$

19. $\frac{u}{12} = 11$

$u = 132$

21. $\frac{a}{45} = 12$

$a = 540$

23. $\frac{j}{73} = 0$

$j = 0$

14. $\frac{y}{3} = 9$

$y = 27$

16. $\frac{r}{5} = 9$

$r = 45$

18. $\frac{c}{16} = 18$

$c = 288$

20. $\frac{g}{320} = 8$

$g = 2560$

22. $\frac{w}{1} = 25$

$w = 25$

24. $\frac{v}{8} = 1.01$

$v = 8.08$

Problem Solving

25. Georgia has $\frac{1}{3}$ of money she needs to buy a dress. If the dress costs \$66.27, how much money does Georgia have?

$\frac{1}{3}x = \$66.27; x = \$22.09; \$22.09$

26. Roy averaged half as many points per game as Carl. If Roy averaged 9.4 points a game, how many did Carl average?

$9.4 \times 2 = 18.8; 18.8 \text{ points}$

Subtract Integers

Name _____

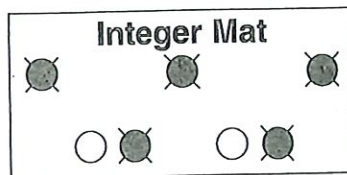
Date _____

Subtracting an integer is the same as adding the opposite of that integer.

Subtract: $-3 - -5 = n$

$$\begin{array}{r} \swarrow \quad \searrow \\ -3 - -5 = -3 + +5 \\ \nwarrow \quad \nearrow \end{array}$$

$$-3 - -5 = +2 \quad n = +2$$



Key

$$1 \text{ } \bigcirc = +1$$

$$1 \text{ } \bigotimes = -1$$

$$+1 + -1 = 0$$

zero pair: $\bigcirc \bigotimes$

Rewrite each as an addition expression. Then add.

1. $-7 - +2$ $-7 + -2 = -9$
2. $+6 - -2$ $+6 + +2 = +8$
3. $-9 - -7$ $-9 + +7 = -2$
4. $-12 - -14$ $-12 + +14 = +2$
5. $+18 - -5$ $+18 + +5 = +23$
6. $-10 - -10$ $-10 + +10 = 0$
7. $-5 - +4$ $-5 + -4 = -9$
8. $+8 - -11$ $+8 + +11 = +19$
9. $+7 - +8$ $+7 + -8 = -1$

Subtract. Use counters to help you.

10. $+6 - -8$ $+14$
11. $-9 - -2$ -7
12. $-6 - -11$ $+5$
13. $-4 - -6$ $+2$
14. $+6 - +2$ $+4$
15. $-1 - -5$ $+4$

Circle the letter of the correct answer.

16. $-12 - -1$ a. -13 **(b.)** -11 c. $+13$ d. -11
17. $0 - -13$ a. -13 **(b.)** $+13$ c. 0 d. -1
18. $-7 - -7$ **(a.)** 0 b. -14 c. $+14$ d. $+1$

Problem Solving

19. On a winter day, the temperature dropped from -3°C to -11°C . Find the change in temperature.

$$-11 - -3 = -8; \text{ dropped } 8^{\circ}\text{C}$$

20. Kay lives 4 blocks north of school. Joe lives 7 blocks south of school. What is the distance between Kay's house and Joe's house?

$$+4 - -7 = +11; 11 \text{ blocks}$$

Multiply Integers

Name _____

Date _____

The product of two integers:

is *positive* if they have the *same* sign.

$$+5 \times +2 = +10$$

$$-4 \times -3 = +12$$

is *negative* if they have *different* signs

$$-5 \times +2 = -10$$

$$+4 \times -3 = -12$$

is zero if one or both is zero.

$$0 \times -2 = 0$$

$$0 \times +2 = 0$$

$$0 \times 0 = 0$$

Use the rules above to find each product.

1. $-6 \times +3 = -18$ 2. $-9 \times 0 = 0$ 3. $+10 \times -3 = -30$ 4. $-10 \times -5 = +50$

5. $-3 \times +3 = -9$ 6. $+3 \times +3 = +9$ 7. $-3 \times -3 = +9$ 8. $0 \times +3 = 0$

9. $-9 \times -3 = +27$ 10. $+6 \times +3 = +18$ 11. $-4 \times +5 = -20$ 12. $+8 \times +3 = +24$

Let p = positive integer and n = negative integer.

Choose a. positive, b. negative, or c. zero to complete each statement. Explain each answer.

13. $n \times p = b$ 14. $(n \times p) \times p = b$ 15. $(0 \times n) \times p = c$
different signs $(-) \times (+) = (-)$ 0 is one factor

16. $n \times 0 = c$ 17. $(p \times p) \times p = a$ 18. $n \times (n \times n) = b$
0 is one factor $(+) \times (+) = (+)$ $(-) \times (+) = (-)$

Compute. Use the order of operations.

19. $-5(+7 + +2) = -45$ 20. $+3(-1 + -2) = -9$ 21. $-8(-9 + +3) = +48$

22. $-4(+6 + -3) = -12$ 23. $+2(-5 + +1) = -8$ 24. $+3(-2 + -7) = -27$

Problem Solving

25. A healthcare stock gains 2 points each day for five days. What is the net gain over the five days?

$$5 \times +2 = +10; \text{ a gain of 10 points}$$

26. A pipe was leaking water at a rate of 5 gallons an hour. What was the net loss of water over a four-hour period?

$$4 \times -5 = -20; \text{ 20 gallons net loss}$$

Function Tables

CCSS: 5.OA.3

Name _____

Date _____

Let $m = 1$ month. Let $\frac{m}{12}$ = number of years.

m	5	11	12	36	60
$\frac{m}{12}$	$\frac{5}{12}$	$\frac{11}{12}$	$\frac{12}{12} = 1$	$\frac{36}{12} = 3$	$\frac{60}{12} = 5$

Use the rule to complete each function table.

1. Let s = weight of fruit in pounds. Let $s + 4$ = weight of fruit plus weight of box.

s	12	29	35	51	68
$s + 4$	16	33	39	55	72

2. Let z = number of books. Let $\$7z$ = total cost.

z	1	3	5	7	9
$\$7z$	\$7	\$21	\$35	\$49	\$63

3. Let b = perimeter of garden. Let $\frac{b}{4}$ = length of one side of garden.

b	16	40	52	64	100
$\frac{b}{4}$	4	10	13	16	25

Write the rule for each function table.

4.

a	?
3	12
5	20
8	32
12	48

5.

r	?
2	15
4	17
7	20
9	22

6.

f	?
75	15
40	8
15	3
5	1

$a \cdot 4; a \times 4; \text{ or } 4a$

$r + 13$

$f \div 5; \text{ or } \frac{f}{5}$

Function and Coordinate Graphs

CCSS: 5.G.2

Name _____

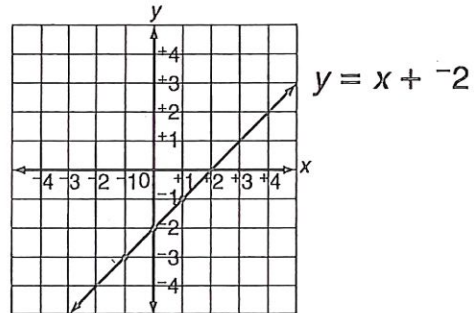
Date _____

Graph the function $y = x + -2$ on a coordinate plane.

• Make a function table.

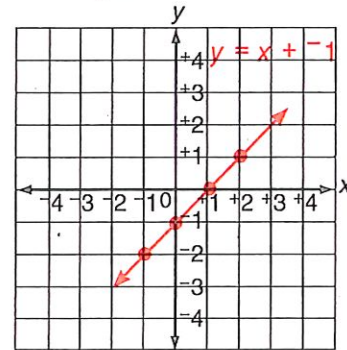
• Graph each ordered pair. Connect the points.

x	$y = x + -2$	y	(x, y)
-1	$y = -1 + -2$	-3	$(-1, -3)$
0	$y = 0 + -2$	-2	$(0, -2)$
+1	$y = +1 + -2$	-1	$(+1, -1)$



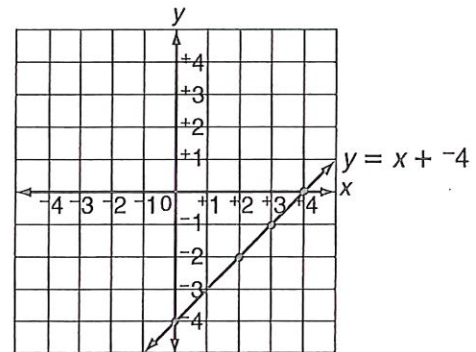
1. Complete the function table. Then graph on the coordinate plane.

x	$y = x + -1$	y	(x, y)
-1	$y = -1 + -1$	-2	$(-1, -2)$
0	$y = 0 + -1$	-1	$(0, -1)$
+1	$y = +1 + -1$	0	$(+1, 0)$
+2	$y = +2 + -1$	+1	$(+2, +1)$



Use the given graph of $y = x + -4$.

- When $x = 0$, what is the value of y ? -4
- When $x = +2$, what is the value of y ? -2
- For what value of x is $y = -1$? +3
- For what value of x is $y = 0$? +4



Problem Solving

6. A meteorologist discovered that a storm is following a path on her map made by the equation $y = x + -3$. Will the storm pass through the point $(+2, 0)$? Make a function table. Then graph on a coordinate plane to answer.

x	$y = x + -3$	y	(x, y)
-1	$y = -1 + -3$	-4	$(-1, -4)$
0	$y = 0 + -3$	-3	$(0, -3)$
+1	$y = +1 + -3$	-2	$(+1, -2)$
+2	$y = +2 + -3$	-1	$(+2, -1)$

No

