

# SUMMER

## PRE-ALGEBRA

### REVIEW PACKET

FOR RISING 7<sup>TH</sup> GRADERS

THINK.

SOLVE.

GROW.

SUCCEED!

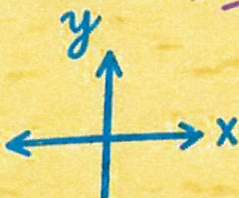
$$3x + 7 = 22$$

$$P = 2l + 2w$$

$$-3(2x - 4) = 16$$

$$\frac{x}{5} = -4$$

$$\frac{2}{3}$$



NAME: \_\_\_\_\_







Dear Parents and Guardians,

As we begin summer break, we want to thank you for your partnership and support throughout the school year. We are incredibly proud of the growth and hard work our students have shown in mathematics from kindergarten through eighth grade.

To help students maintain and strengthen their math skills over the summer, we are sending home a Summer Math Review Packet. Research consistently shows that students can experience “summer learning loss” when academic skills are not practiced regularly during the break. Even a small amount of consistent review can make a tremendous difference in helping students retain important concepts and begin the new school year with confidence.

We encourage students to work on a few problems from each worksheet every week rather than trying to complete the entire packet all at once. Short, regular practice sessions are far more effective for long-term learning and help students build strong problem-solving habits. Just 15–20 minutes of math review several times a week can keep skills sharp and reduce frustration when school resumes in the fall.

As your child works through the packet, encourage them to:

- Show their work and explain their thinking
- Take their time and check their answers
- Ask questions when they are unsure
- Practice perseverance with challenging problems

Math is a skill that grows with practice, and your encouragement at home plays an important role in your child’s success. We hope this packet serves as a helpful tool to keep learning active throughout the summer months.

Thank you for your continued support. We wish your family a safe, relaxing, and enjoyable summer!

Sincerely,  
St. John’s Math Teachers





# 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.

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

Use the order of operations to compute.

1.  $5 - 8 \div 2 + 7$  \_\_\_\_\_ 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.  $35 \div 7 + 5 - (7 \times 1)$  \_\_\_\_\_

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# 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.  $4\frac{7}{10} = \underline{\hspace{1cm}} + 1 + \frac{7}{10}$   
 $= \underline{\hspace{1cm}} + \frac{10}{10} + \frac{7}{10}$   
 $= \underline{\hspace{1cm}}\frac{17}{10}$

3.  $9\frac{5}{8} = 8 + \frac{8}{8} + \frac{5}{8}$   
 $= \underline{\hspace{1cm}} + \frac{8}{8} + \frac{5}{8}$   
 $= \underline{\hspace{1cm}}\frac{13}{8}$

**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.  $8\frac{2}{3} - 6\frac{3}{4} = \underline{\hspace{2cm}}$

20.  $4\frac{1}{5} - \frac{4}{5} = \underline{\hspace{2cm}}$

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

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

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

24.  $9\frac{1}{4} - \frac{5}{6} = \underline{\hspace{2cm}}$

## 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 \_\_\_\_\_

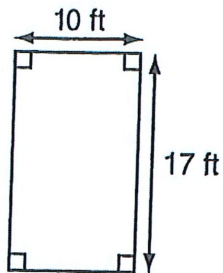
Date \_\_\_\_\_

## Rectangles

$$A = \ell \times w$$

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

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

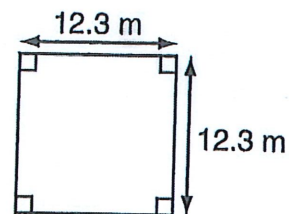


## Squares

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

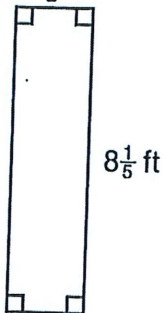
$$A = 12.3 \text{ m} \times 12.3 \text{ m}$$

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



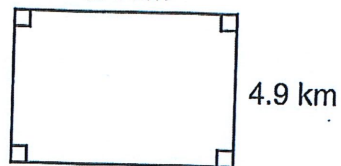
Find the area of each rectangle.

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



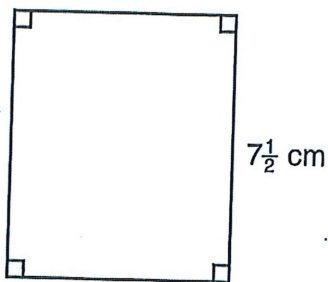
2.

$6.4 \text{ km}$



3.

$6 \text{ cm}$



4.

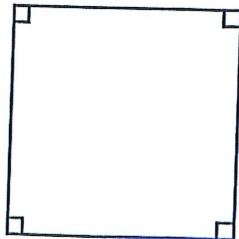
$15.6 \text{ mm}$



Find the area of each square.

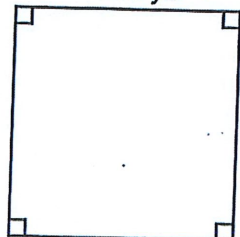
5.

$13 \text{ in.}$



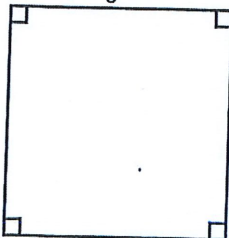
6.

$8.8 \text{ yd}$



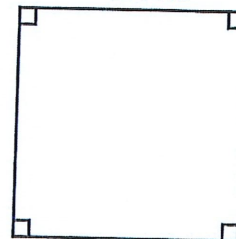
7.

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



8.

$6.1 \text{ mi}$



Find the area of each square or rectangle.

9.  $7.3 \text{ dm long}$   
 $3.9 \text{ dm wide}$

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

11.  $22 \text{ mm long}$   
 $18 \text{ mm wide}$

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

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

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

15.  $2 \text{ km long}$   
 $0.5 \text{ km wide}$

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

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# Areas of Parallelograms and Triangles

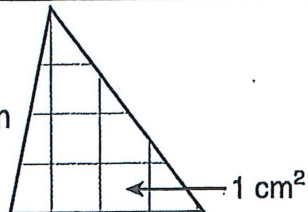
Name \_\_\_\_\_

Date \_\_\_\_\_

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

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

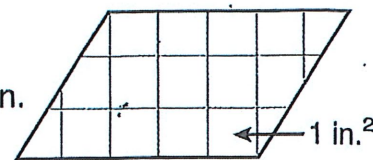
$$A = 8 \text{ cm}^2$$



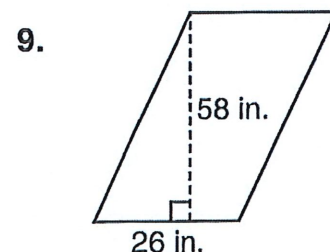
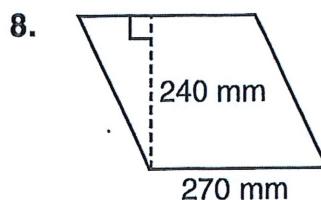
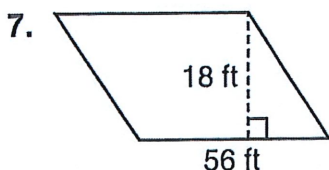
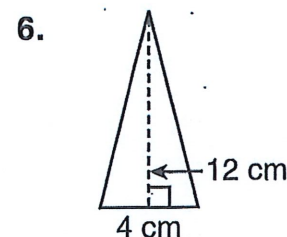
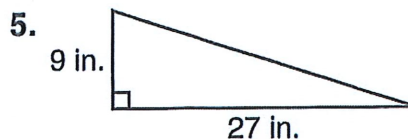
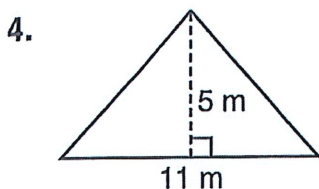
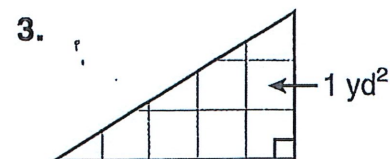
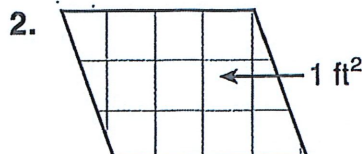
$$A = b \times h$$

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

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



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? \_\_\_\_\_

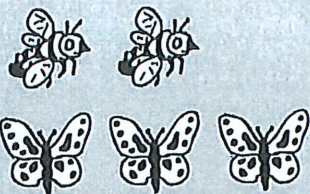
11. A parallelogram has a base of 32 cm and a height of 25 cm. A triangle has a base of 66 cm and a height of 25 cm. Which figure has the greater area? by how much? \_\_\_\_\_



# 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?

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

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

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

$$14 = 14$$

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.  $\frac{5}{6}, \frac{15}{18}$  \_\_\_\_\_ 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.  $\frac{1}{7} = \frac{17}{n}$  \_\_\_\_\_ 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? \_\_\_\_\_

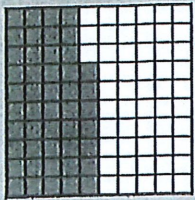


# Relate Fractions to Percents

Name \_\_\_\_\_

Date \_\_\_\_\_

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



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

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

So 47% of the grid is shaded.

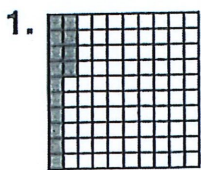
Write the fraction as a percent:

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

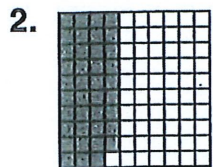
$$\frac{9}{20} = \frac{9 \times 5}{20 \times 5} = \frac{45}{100} = 45\%$$

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

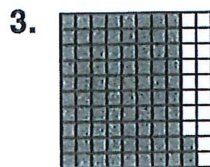
Tell what fractional part of the grid is shaded. Then write the fraction as a percent.



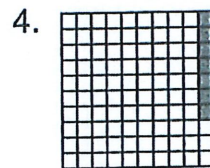
$$\frac{\quad}{100} = \quad\%$$



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



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



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

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?

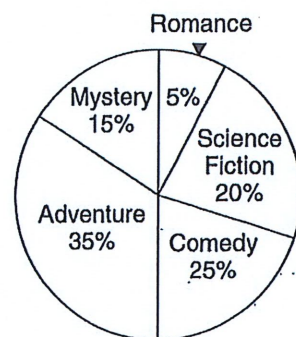
|                  |    |               |   |          |
|------------------|----|---------------|---|----------|
| Rate of Discount | ×  | Regular Price | = | Discount |
| ↓                |    | ↓             |   | ↓        |
| 15%              | of | \$40.00       | = | $n$      |
| 0.15         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

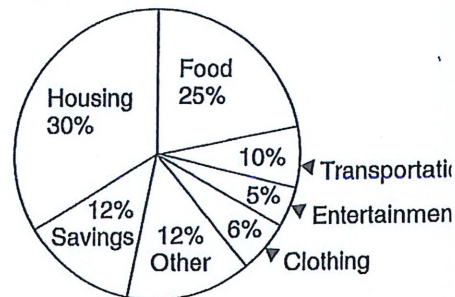
Weekly Rental



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 \_\_\_\_\_

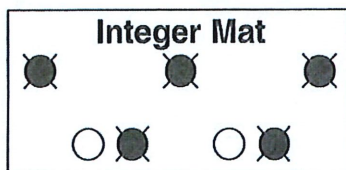
Date \_\_\_\_\_

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

Subtract:  $-3 - -5 = n$

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

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



**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  $-3^{\circ}\text{C}$  to  $-11^{\circ}\text{C}$ . 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.  $-9 \times 0$  \_\_\_\_\_ 3.  $+10 \times -3$  \_\_\_\_\_ 4.  $-10 \times -5$  \_\_\_\_\_

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

9.  $-9 \times -3$  \_\_\_\_\_ 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 \_\_\_\_\_

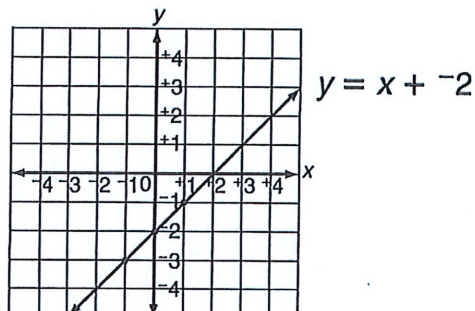
Date \_\_\_\_\_

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

• Make a function table.

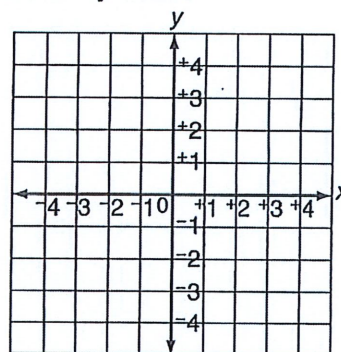
• Graph each ordered pair. Connect the points.

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



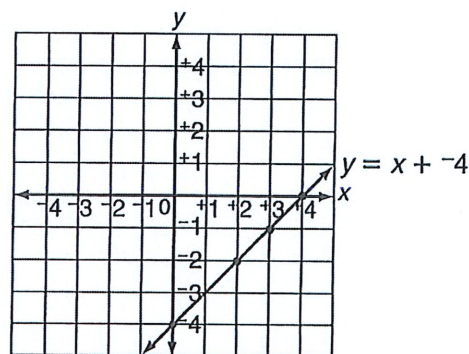
**1. Complete the function table. Then graph on the coordinate plane.**

| $x$ | $y = x + -1$ | $y$ | $(x, y)$ |
|-----|--------------|-----|----------|
| -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

- 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.

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

