Summer 2026 Math Packet

Rising 7th Grade : Mr. Fallone/Mrs. Sandoz –to 7th Grade Pre–Algebra

Due Date: September 11, 2026

This summer, we encourage you to continue to practice your mathematics at home. Practicing math skills over the summer can keep the brain's pathways for computation and mathematical vocabulary strong.

This summer, you will complete:

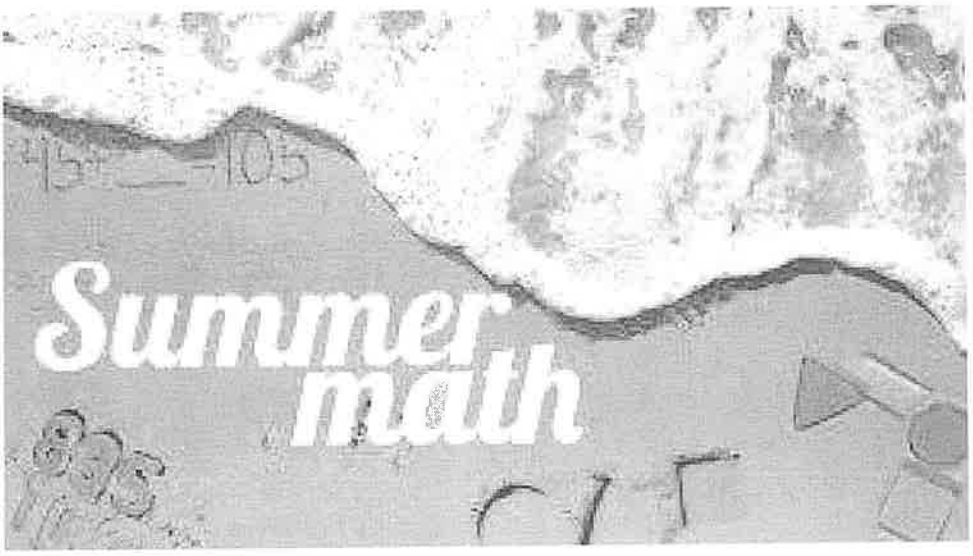
- ☐ *7th Grade Pre-Algebra Pre-requisite Skills Packet*
- ☐ *Delta Math Assignments - total of 10*

- ➢ *Summer assignments will be completed using the attached skill sheets & the Delta Math digital platform.*
- ➢ *You already have a Delta Math Account, so sign in to your existing school account with Google. Complete the "Summer Work" 2026 Delta assignment.*
- ➢ *Feel free to use the sample problems and videos in Delta Math. Khan Academy is also a good source for support. The "Math with Mr. J" YouTube site is also great! https://www.youtube.com/@MathwithMrJ*
- ➢ *This is not calculator work. Write your process.*
- ➢ *Be neat and organized! Part of success in math is organization and keeping track of your calculations and steps.*
- ➢ *Follow the suggested pacing guide. Feel free to work in a different order if something is confusing you and go back to it later.*
- ➢ *If you are stuck on a problem, read the example problems provided at the beginning of each exercise. Use the answer key to check your answers as you finish topics. This will help you in addressing areas of strength and weakness and what you may need to work on to ensure success in 7th grade.*

Delta Skills:

- Distributive Property (Basic)
- Equivalent Expressions
- Simplify Expressions with Distribution
- Add and Subtract Integers (No Number Line)
- Multiplication / Division of Integers L1
- PEMDAS (Integers with Exponents)
- Addition Algorithm, Three-Digit Decimals
- Subtraction Algorithm, Three-Digit Decimals
- Multiplication Algorithm, Decimal, 3- x 3-Digit
- Long Division, Decimal Dividend, Decimal Divisor, Terminating Quotient

Have a great summer, and we will see you in September!



Suggested Pacing

	Week of	Packet = 18 pages Delta Skills - 10 skills approx 3 hours and 15 minutes
Week 1	July 6	**3 pages of the packet**
Week 2	July 13	**3 pages of the packet**
Week 3	July 20	**3 pages of the packet - Work on 2 Delta Skills**
Week 4	July 27	**3 pages of the packet - Work on 2 Delta Skills**
Week 5	August 3	**3 pages of the packet - Work on 2 Delta Skills**
Week 6	August 10	**3 pages of the packet - Work on 2 Delta Skills**
Week 7	August 17	**Work on final 2 Delta Skills**
Week 8	August 24	**Finish up and review your work!**

Rounding Decimals

Rounding Decimals

Round 8.135 to the nearest tenth.

$8.1\underline{3}5 \rightarrow 8.1$

less than 5

Round 32.56713 to the nearest hundredth.

$32.56\underline{7}13 \rightarrow 32.57$

greater than 5

Round to the nearest whole number:

1. 41.803	2. 119.63	3. 20.05	4. 3.45
5. 79.531	6. 8.437	7. 29.37	8. 109.96

Round to the nearest tenth:

9. 33.335	10. 1.861	11. 99.96	12. 103.103
13. 16.031	14. 281.05	15. 8.741	16. 27.773

Round to the nearest hundredth:

17. 69.713	18. 5.569	19. 609.906	20. 247.898
21. 5.535	22. 67.1951	23. 14.0305	24. 6.9372

Multiplying and Dividing by 10, 100, etc.

When multiplying by a power of 10, move the decimal to the right:

34.61 x 10 → move 1 place → 346.1

6.77 x 100 → move 2 places → 677

When dividing by a power of 10, move the decimal to the left:

7.39 ÷ 100 → move 2 place → 0.0739

105.61 ÷ 1000 → move 3 places → 0.10561

1. 4.81 × 100 =
2. 37.68 ÷ 10 =
3. 0.46 × 1000 =
4. 7.12 ÷ 10,000 =
5. 5.4 × 10 =
6. 27,500 ÷ 1,000 =
7. 4.395 × 100,000 =
8. 0.0075 ÷ 100 =
9. 2.274 × 10 =
10. 90,000 ÷ 100 =
11. 0.000618 × 1,000 =
12. 39.006 ÷ 1,000 =
13. 16 × 100 =
14. 28.889 ÷ 10,000 =
15. 36.89 × 10,000 =
16. 0.091 ÷ 100 =
17. 0.0336 × 100,000 =
18. 1,672 ÷ 100,000 =

Powers and Exponents

Exponent

$3^4 = 3 \cdot 3 \cdot 3 \cdot 3 = 81$

Base — common factors

The **exponent** tells you how many times to use the **base** as a factor.

EXAMPLE 1 **Write 6^3 as a product of the same factor.**

The base is 6. The exponent 3 means that 6 is used as a factor 3 times.

$6^3 = 6 \cdot 6 \cdot 6$

EXAMPLE 2 **Evaluate 5^4.**

$5^4 = 5 \cdot 5 \cdot 5 \cdot 5$

$= 625$

EXAMPLE 3 **Write $4 \cdot 4 \cdot 4 \cdot 4 \cdot 4$ in exponential form.**

The base is 4. It is used as a factor 5 times, so the exponent is 5.

$4 \cdot 4 \cdot 4 \cdot 4 \cdot 4 = 4^5$

Write each power as a product of the same factor (see example 1 above):

1. 7^3
2. 2^7
3. 9^2
4. 15^4

Evaluate each expression (see example 2 above):

5. 3^5
6. 7^3
7. 8^4
8. 5^3

Write each product in exponential form (see example 3 above):

9. $2 \cdot 2 \cdot 2 \cdot 2$
10. $7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 \cdot 7$
11. $10 \cdot 10 \cdot 10$
12. $9 \cdot 9 \cdot 9 \cdot 9 \cdot 9$
13. $12 \cdot 12 \cdot 12$
14. $5 \cdot 5 \cdot 5 \cdot 5$
15. $6 \cdot 6 \cdot 6 \cdot 6 \cdot 6$
16. $1 \cdot 1 \cdot 1 \cdot 1 \cdot 1 \cdot 1 \cdot 1 \cdot 1$

Order of Operations

Use the **order of operations** to evaluate numerical expressions.

1. Do all operations within grouping symbols first.
2. Evaluate all powers before other operations.
3. Multiply and divide in order from left to right.
4. Add and subtract in order from left to right.

EXAMPLE 1 **Evaluate $(10 - 2) - 4 \cdot 2$.**

$(10 - 2) - 4 \cdot 2 = 8 - 4 \cdot 2$ Subtract first since $10 - 2$ is in parentheses.
$= 8 - 8$ Multiply 4 and 2.
$= 0$ Subtract 8 from 8.

EXAMPLE 2 **Evaluate $8 + (1 + 5)^2 \div 4$.**

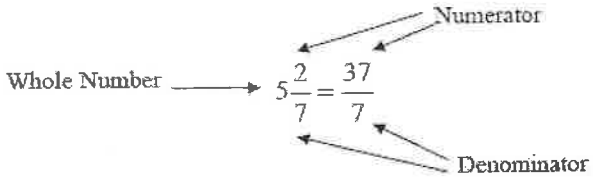
$8 + (1 + 5)^2 \div 4 = 8 + 6^2 \div 4$ First, add 1 and 5 inside the parentheses.
$= 8 + 36 \div 4$ Find the value of 6^2.
$= 8 + 9$ Divide 36 by 4.
$= 17$ Add 8 and 9.

Evaluate each expression.

1. $(1 + 7) \times 3$
2. $28 - 4 \cdot 7$
3. $5 + 4 \cdot 3$
4. $(40 \div 5) - 7 + 2$
5. $35 \div 7(2)$
6. 3×10^3
7. $45 \div 5 + 36 \div 4$
8. $42 \div 6 \times 2 - 9$
9. $2 \times 8 - 3^2 + 2$
10. $5 \times 2^2 + 32 \div 8$
11. $3 \times 6 - (9 - 8)^3$
12. 3.5×10^2

Mixed Numbers

To convert a mixed number, $5\frac{2}{7}$, to an improper fraction, $\frac{37}{7}$:



$5\frac{2}{7}$	Work in a clockwise direction, beginning with the denominator, (7).
$5 \times 7 = 35$	Multiply the denominator (7) by the whole number, (5)
$35 + 2 = 37$	Add that product, (35), to the numerator (2) of the fraction.
$\frac{(5\times7)+2}{7}=\frac{37}{7}$	The denominator remains the same for the mixed number and the improper fraction.

Convert to Improper Fractions:

1) $4\frac{2}{5}=$

2) $5\frac{3}{8}=$

3) $2\frac{4}{9}=$

4) $5\frac{6}{7}=$

5) $8\frac{1}{8}=$

6) $14\frac{3}{4}=$

7) $6\frac{3}{5}=$

8) $9\frac{1}{10}=$

9) $16\frac{1}{2}=$

10) $8\frac{0}{1}=$

11) $9=$
Hint: See #10

12) $7\frac{3}{4}=$

13) $12\frac{5}{9}=$

14) $10\frac{3}{8}=$

15) $28\frac{2}{3}=$

Finding Equivalent Fractions with Larger Denominators

This process is sometimes called "**Boosting**"

$$Example: \frac{5}{8} = \frac{?}{56}$$

$56 \div 8 = 7$ Divide the larger denominator by the smaller to find the factor used to multiply the denominator. (Note: The product of the smaller denominator and the factor is the larger denominator)

$\frac{5}{8} \times \frac{7}{7} = \frac{5 \times 7}{8 \times 7}$ Use this factor to multiply the numerator.

$\frac{5}{8} = \frac{35}{56}$ The result is two equivalent fractions.

Note: Equal denominators are required for addition and subtraction of fractions.

Find the equivalent fractions as indicated:

1) $\frac{2}{5} = \frac{}{15}$

2) $\frac{3}{8} = \frac{}{32}$

3) $\frac{4}{9} = \frac{}{54}$

4) $\frac{6}{7} = \frac{}{49}$

5) $\frac{1}{8} = \frac{}{48}$

6) $\frac{3}{4} = \frac{}{44}$

7) $\frac{3}{5} = \frac{}{45}$

8) $\frac{1}{10} = \frac{}{60}$

9) $\frac{1}{2} = \frac{}{28}$

10) $\frac{10}{100} = \frac{}{700}$

11) $\frac{8}{9} = \frac{}{81}$

12) $\frac{3}{4} = \frac{}{68}$

13) $\frac{5}{9} = \frac{}{108}$

14) $\frac{3}{8} = \frac{}{112}$

15) $\frac{2}{3} = \frac{}{462}$

Equivalent Fractions with Smaller Denominators

Reducing Fractions

Example: Reduce the following fraction to lowest terms

$$\frac{90}{105}$$

There are **three** common **methods**, DO NOT **mix** steps of the methods!

Method 1:

$\frac{90\div15}{105\div15}=\frac{6}{7}$ The Greatest Common Factor for 90 and 105 is 15. Divide the numerator and the denominator by the GCF, 15.

Method 2:

$\frac{90\div5}{105\div5}=\frac{18}{21}$ Examine the numerator and denominator for any common factors, divide both numerator and denominator by that common factor. Repeat as needed.

- Both 90 and 105 are divisible by 5.

$\frac{18\div3}{21\div3}=\frac{6}{7}$

- Both 18 and 21 are divisible by 3.

Method 3:

$\frac{90}{105}=\frac{2\times3\times3\times5}{7\times3\times5}$ Express the numerator and denominator as a product of prime factors.

$\frac{90}{105}=\frac{2\times3\times(3\times5)}{7\times(3\times5)}$ Divide numerator and denominator by common factors, (3x5)

$=\frac{2\times3}{7}=\frac{6}{7}$ Multiply remaining factors.

Reduce these fractions.

1) $\frac{28}{50}=$

2) $\frac{8}{24}=$

3) $\frac{30}{54}=$

4) $\frac{18}{42}=$

5) $\frac{32}{48}=$

6) $\frac{36}{54}=$

7) $\frac{14}{56}=$

8) $\frac{18}{28}=$

9) $\frac{36}{216}=$

10) $\frac{35}{42}=$

11) $12\frac{54}{99}=$

12) $15\frac{280}{320}=$

Improper Fractions

Example: Convert $\frac{14}{3}$ to an Improper Fraction

$14 \div 3 = 4$ Remainder 2

Remember: Dividend ÷ Divisor = Quotient

Divide the numerator (14) by the denominator (3).

$\frac{14}{3} = 4\frac{2}{3}$

Write the mixed number in the form: $Quotient\frac{remainder}{divisor}$

Note: Check you answer to see if you can reduce the fraction.

Convert these improper fractions to mixed numbers. ***Be sure to reduce when it's possible.***

#11, 12 Hint: how many wholes will there be?

1) $\frac{8}{5} =$

2) $\frac{18}{7} =$

3) $\frac{37}{9} =$

4) $\frac{127}{5} =$

5) $\frac{32}{9} =$

6) $\frac{114}{5} =$

7) $\frac{128}{3} =$

8) $\frac{401}{3} =$

9) $\frac{36}{6} =$

10) $\frac{235}{2} =$

11) $15\frac{280}{6} =$

12) $8\frac{315}{3} =$

13) $\frac{54}{8} =$

14) $\frac{26}{8} =$

15) $\frac{258}{9} =$

Multiplying Fractions

When multiplying fractions, you multiply the numerators, then multiply the denominators and then reduce if necessary.

EXAMPLE 1 **Find $\frac{3}{8} \cdot \frac{4}{11}$. Write in simplest form.**

$$\frac{3}{8} \cdot \frac{4}{11} = \frac{3}{\cancel{8}_{2}} \cdot \frac{\cancel{4}^{1}}{11}$$ Divide 8 and 4 by their GCF, 4.

$$= \frac{3 \cdot 1}{2 \cdot 11}$$ Multiply the numerators and denominators.

$$= \frac{3}{22}$$ Simplify.

To multiply mixed numbers, first rewrite them as improper fractions.

Multiply and then write in simplest form.

1. $\frac{2}{3} \cdot \frac{3}{5}$

2. $\frac{4}{7} \cdot \frac{3}{4}$

3. $\frac{1}{2} \cdot \frac{7}{9}$

4. $\frac{9}{10} \cdot \frac{2}{3}$

5. $\frac{5}{8} \cdot \left(\frac{4}{9}\right)$

6. $\frac{4}{7} \cdot \left(\frac{2}{3}\right)$

***** Remember to rewrite the mixed numbers as improper fractions before multiplying.***

7. $2\frac{2}{5} \cdot \frac{1}{6}$

8. $3\frac{1}{3} \cdot 1\frac{1}{2}$

9. $3\frac{3}{7} \cdot 2\frac{5}{8}$

10. $1\frac{7}{8} \cdot \left(2\frac{2}{5}\right)$

11. $1\frac{3}{4} \cdot 2\frac{1}{5}$

12. $2\frac{2}{3} \cdot 2\frac{3}{7}$

Dividing Fractions

Two numbers whose product is 1 are **multiplicative inverses**, or **reciprocals**, of each other.

EXAMPLE 1 **Write the multiplicative inverse of $2\frac{3}{4}$.**

$2\frac{3}{4} = \frac{11}{4}$ Write $2\frac{3}{4}$ as an improper fraction.

Since $\frac{11}{4} \cdot \frac{4}{11} = 1$, the multiplicative inverse of $2\frac{3}{4}$ is $\frac{4}{11}$.

To divide by a fraction or mixed number, multiply by its multiplicative inverse.

EXAMPLE 2 **Find $\frac{3}{8} \div \frac{6}{7}$. Write in simplest form.**

$\frac{3}{8} \div \frac{6}{7} = \frac{3}{8} \cdot \frac{7}{6}$ Multiply by the multiplicative inverse of $\frac{6}{7}$, which is $\frac{7}{6}$.

$= \frac{\cancel{3}^{1}}{\cancel{8}_{2}} \cdot \frac{7}{\cancel{6}_{2}}$ Divide 6 and 3 by their GCF, 3.

$= \frac{7}{16}$ Simplify.

Write the multiplicative inverse of each number:

1. $\frac{3}{5}$
2. $\frac{8}{9}$
3. $\frac{1}{10}$
4. $\frac{1}{6}$
5. $2\frac{3}{5}$
6. $1\frac{2}{3}$
7. $5\frac{2}{5}$
8. $7\frac{1}{4}$

Divide. Write in simplest form:

9. $\frac{1}{3} \div \frac{1}{6}$
10. $\frac{2}{5} \div \frac{4}{7}$
11. $\frac{5}{6} \div \frac{3}{4}$
12. $1\frac{1}{5} \div 2\frac{1}{4}$
13. $3\frac{1}{7} \div 3\frac{2}{3}$
14. $\frac{4}{9} \div 2$
15. $\frac{6}{11} \div 4$
16. $5 \div 2\frac{1}{3}$

Adding and Subtracting Fractions

In order to add fractions, they have to be the same size fractions, meaning they must have a common denominator. To get a common denominator you need to convert the fractions proportionally, multiplying the numerator and denominator by the same value.

EXAMPLE 1 **Find $\frac{3}{5} + \frac{2}{3}$. Write in simplest form.**

$$\frac{3}{5} + \frac{2}{3} = \frac{3}{5} \cdot \frac{3}{3} + \frac{2}{3} \cdot \frac{5}{5}$$ The LCD is 5 · 3 or 15.

$$= \frac{9}{15} + \frac{10}{15}$$ Rename each fraction using the LCD.

$$= \frac{9 + 10}{15}$$ Add the numerators. The denominators are the same.

$$= \frac{19}{15} \text{ or } 1\frac{4}{15}$$ Simplify.

Add or subtract. Write in simplest form.

1. $\frac{2}{5} + \frac{3}{10}$
2. $\frac{1}{3} + \frac{2}{9}$
3. $\frac{5}{9} - \frac{1}{6}$
4. $\frac{3}{4} - \frac{1}{8}$
5. $\frac{4}{5} + \frac{1}{3}$
6. $1\frac{2}{3} + \frac{4}{9}$
7. $\frac{1}{2} - \frac{3}{10}$
8. $2\frac{1}{4} + 1\frac{3}{8}$
9. $3\frac{3}{4} - 1\frac{1}{3}$
10. $1\frac{1}{5} + 2\frac{1}{4}$
11. $3\frac{1}{3} - 2\frac{4}{9}$
12. $3\frac{3}{5} - 2\frac{2}{3}$

Solving Addition and Subtraction Equations

EXAMPLE 1 **Solve $w + 19 = 45$. Check your solution.**

	$w + 19 = 45$	Write the equation.
	$w + 19 - 19 = 45 - 19$	Subtract 19 from each side.
	$w = 26$	$19 - 19 = 0$ and $45 - 19 = 26$. w is by itself.
Check	$w + 19 = 45$	Write the original equation.
	$26 + 19 \stackrel{?}{=} 45$	Replace w with 26. Is this sentence true?
	$45 = 45$ ✓	$26 + 19 = 45$

EXAMPLE 2 **Solve $h - 25 = -76$. Check your solution.**

	$h - 25 = -76$	Write the equation.
	$h - 25 + 25 = -76 + 25$	Add 25 to each side.
	$h = -51$	$-25 + 25 = 0$ and $-76 + 25 = -51$. h is by itself.
Check	$h - 25 = -76$	Write the original equation.
	$-51 - 25 \stackrel{?}{=} -76$	Replace h with -51. Is this sentence true?
	$-76 = -76$ ✓	$-51 - 25 = -51 + (-25)$ or -76

Solve each equation. Check your solution.

1. $s - 4 = 12$
2. $d + 2 = 21$
3. $h + 6 = 15$
4. $x + 5 = 8$
5. $b - 10 = 34$
6. $f + 22 = 36$
7. $c + 17 = 41$
8. $v - 36 = 25$
9. $y - 29 = 51$
10. $z - 32 = 19$
11. $t + 13 = 29$
12. $k + 39 = 55$
13. $b + 62 = 95$
14. $x - 39 = 65$
15. $n - 47 = 56$

Solving Multiplication and Division Equations

Use the inverse operation to solve for the variable. Multiplication is the inverse of division and vice versa. Remember you should not divide by a fraction, but rather multiply by the multiplicative inverse.

EXAMPLE 1 **Solve $19w = 104$. Check your solution.**

$19w = 114$	Write the equation.
$\frac{19w}{19} = \frac{114}{19}$	Divide each side of the equation by 19.
$1w = 6$	$19 \div 19 = 1$ and $114 \div 19 = 6$.
$w = 6$	Identity Property: $1w = w$

Check

$19w = 114$	Write the original equation.
$19(6) \stackrel{?}{=} 114$	Replace w with 6.
$114 = 114$ ✓	This sentence is true.

EXAMPLE 2 **Solve $\frac{d}{15} = -9$. Check your solution.**

$\frac{d}{15} = -9$	
$\frac{d}{15}(15) = -9(15)$	Multiply each side of the equation by 15.
$d = -135$	

Check

$\frac{d}{15} = -9$	Write the original equation.
$\frac{-135}{15} \stackrel{?}{=} -9$	Replace d with -135.
$-9 = -9$ ✓	$-135 \div 15 = -9$

Solve each equation. Show your work. Check your solutions.

1. $\frac{r}{5} = 6$

2. $2d = 12$

3. $7h = 21$

4. $8x = 40$

5. $\frac{f}{8} = 6$

6. $\frac{x}{10} = 7$

7. $6c = 24$

8. $\frac{h}{11} = 12$

9. $12t = 60$

10. $5z = 125$

11. $2t = 28$

12. $11k = 33$

Solving Equations with Rational Numbers

EXAMPLE 1 Solve $x - 2.73 = 1.31$. Check your solution.

	$x - 2.73 = 1.31$	Write the equation.
	$x - 2.73 + 2.73 = 1.31 + 2.73$	Add 2.73 to each side.
	$x = 4.04$	Simplify.
Check	$x - 2.73 = 1.31$	Write the original equation.
	$4.04 - 2.73 \stackrel{?}{=} 1.31$	Replace x with 4.04.
	$1.31 = 1.31$ ✓	Simplify.

EXAMPLE 2 Solve $\frac{4}{5}y = \frac{2}{3}$. Check your solution.

	$\frac{4}{5}y = \frac{2}{3}$	Write the equation.
	$\frac{5}{4}\left(\frac{4}{5}y\right) = \frac{5}{4} \cdot \frac{2}{3}$	Multiply each side by $\frac{5}{4}$.
	$y = \frac{5}{6}$	Simplify.
Check	$\frac{4}{5}y = \frac{2}{3}$	Write the original equation.
	$\frac{4}{5}\left(\frac{5}{6}\right) \stackrel{?}{=} \frac{2}{3}$	Replace y with $\frac{5}{6}$.
	$\frac{2}{3} = \frac{2}{3}$ ✓	Simplify.

Solve each equation. Check your solutions.

1. $t + 1.32 = 3.48$
2. $b - 4.22 = 7.08$
3. $r - 4.48 = 8.07$
4. $h + \frac{4}{9} = \frac{7}{9}$
5. $x - \frac{1}{4} = \frac{5}{8}$
6. $f - \frac{1}{3} = \frac{3}{5}$
7. $3.2c = 9.6$
8. $1.26d = 5.04$
9. $\frac{3}{5}x = 6$
10. $\frac{3}{4}t = \frac{2}{3}$
11. $\frac{w}{2.5} = 4.2$
12. $1\frac{3}{4}r = 3\frac{5}{8}$

Solving Proportions

A proportion is two fractions that are equivalent. For example, we know that $\frac{1}{2} = \frac{3}{6}$ and we can say that one-half is proportional to three-sixths. You can use cross products to determine if two fractions are proportional.

EXAMPLE 1 **Determine whether the pair of ratios $\frac{20}{24}$ and $\frac{12}{18}$ forms a proportion.**

Find the cross products.

$20 \times 12 \rightarrow 24 \cdot 12 = 288$

$24 \times 18 \rightarrow 20 \cdot 18 = 360$

Since the cross products are not equal, the ratios do not form a proportion.

EXAMPLE 2 **Solve $\frac{12}{30} = \frac{k}{70}$.**

$\frac{12}{30} = \frac{k}{70}$	Write the equation.
$12 \cdot 70 = 30 \cdot k$	Find the cross products.
$840 = 30k$	Multiply.
$\frac{840}{30} = \frac{30k}{30}$	Divide each side by 30.
$28 = k$	Simplify.

The solution is 28.

Determine whether each pair of fractions forms a proportion: (you can use a calculator for this part but show work)

1. $\frac{17}{10}, \frac{12}{5}$	2. $\frac{6}{9}, \frac{12}{18}$	3. $\frac{8}{12}, \frac{10}{15}$
4. $\frac{7}{15}, \frac{13}{32}$	5. $\frac{7}{9}, \frac{49}{63}$	6. $\frac{8}{24}, \frac{12}{28}$
7. $\frac{4}{7}, \frac{12}{71}$	8. $\frac{20}{35}, \frac{30}{45}$	9. $\frac{18}{24}, \frac{3}{4}$

Solve each proportion:

10. $\frac{x}{5} = \frac{15}{25}$

11. $\frac{3}{4} = \frac{12}{c}$

12. $\frac{6}{9} = \frac{10}{r}$

13. $\frac{16}{24} = \frac{z}{15}$

14. $\frac{5}{8} = \frac{s}{12}$

15. $\frac{14}{t} = \frac{10}{11}$

16. $\frac{w}{6} = \frac{2.8}{7}$

17. $\frac{5}{y} = \frac{7}{16.8}$

18. $\frac{x}{18} = \frac{7}{36}$

Fractions, Decimals, and Percent

EXAMPLE 1 **Write 56% as a decimal.**

$56\% = \underbrace{56\ \%}$ Divide by 100 and remove the percent symbol.

$= 0.56$

EXAMPLE 2 **Write 0.17 as a percent.**

$0.17 = \underbrace{0.17}$ Multiply by 100 and add the percent symbol.

$= 17\%$

EXAMPLE 3 **Write $\frac{7}{20}$ as a percent.**

Method 1 Use a proportion.

$\frac{7}{20} = \frac{x}{100}$ Write the proportion.

$7 \cdot 100 = 20 \cdot x$ Find cross products.

$700 = 20x$ Multiply.

$\frac{700}{20} = \frac{20x}{20}$ Divide each side by 20.

$35 = x$ Simplify.

So, $\frac{7}{20}$ can be written as 35%.

Method 2 Write as a decimal.

$\frac{7}{20} = \underbrace{0.35}$ Convert to a decimal by dividing.

$= 35\%$ Multiply by 100 and add the percent symbol.

NO CALCULATORS!

Write each percent as a decimal: (see example 1 above)

1. 10%
2. 36%
3. 82%
4. 49.1%

Write each decimal as a percent: (see example 2 above)

5. 0.14
6. 0.59
7. 0.932
8. 1.07

Write each fraction as a percent: (see example 3 above)

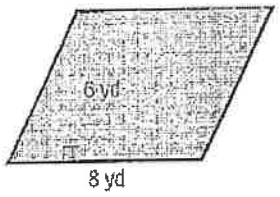
9. $\frac{3}{4}$
10. $\frac{7}{10}$
11. $\frac{9}{16}$
12. $\frac{1}{40}$

Area of Parallelograms, Triangles, & Trapezoids

Formulas:

Area of a Triangle $=\frac{1}{2}bh$ Area of a Parallelogram $= bh$ Area of a Trapezoid $=\frac{1}{2}h(b_1 + b_2)$

EXAMPLES **Find the area of each figure.**

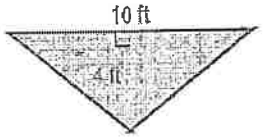


1. The base is 8 yards. The height is 6 yards.

$A = bh$ Area of a parallelogram

$A = 8 \cdot 6$ or 48 Replace b with 8 and h with 6. Multiply.

The area is 48 square yards.

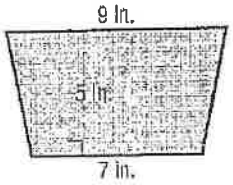


2. The base is 10 feet. The height is 4 feet.

$A = \frac{1}{2}bh$ Area of a triangle

$A = \frac{1}{2} \cdot 10 \cdot 4$ or 20 Replace b with 10 and h with 4. Multiply.

The area is 20 square feet.



3. The height is 5 inches. The lengths of the bases are 9 inches and 7 inches.

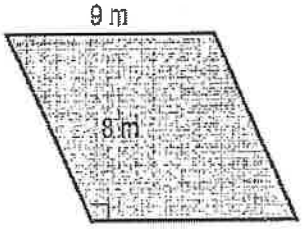
$A = \frac{1}{2}h(b_1 + b_2)$ Area of a trapezoid

$A = \frac{1}{2} \cdot 5 \cdot (9 + 7)$ or 40 Replace h with 5, b_1 with 9, and b_2 with 7. Simplify.

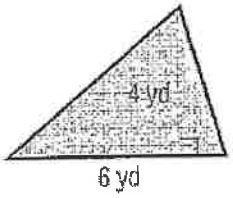
The area is 40 square inches.

Find the area of each figure.

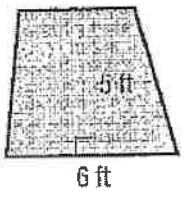
1.



2.



3.



4. parallelogram: base, 11 cm; height, 12 cm

5. triangle: base, 8 mi; height, 13 mi

6. trapezoid: height, 7 km; bases, 8 km and 12 km

The Coordinate Plane

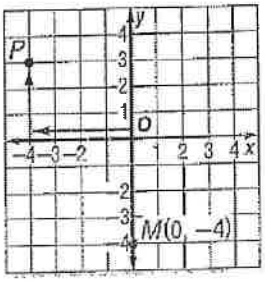
The **coordinate plane** is used to locate points. The horizontal number line is the ***x*-axis.** The vertical number line is the ***y*-axis.** Their intersection is the **origin.**

Points are located using **ordered pairs.** The first number in an ordered pair is the ***x*-coordinate;** the second number is the ***y*-coordinate.**

The coordinate plane is separated into four sections called **quadrants.**

EXAMPLE 1 **Name the ordered pair for point P. Then identify the quadrant in which P lies.**

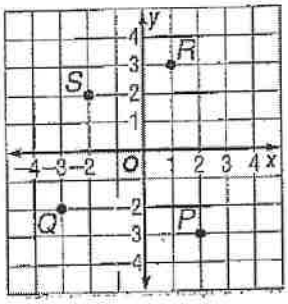
- Start at the origin.
- Move 4 units left along the x-axis.
- Move 3 units up on the y-axis.
  The ordered pair for point P is $(-4, 3)$.
  P is in the upper left quadrant or quadrant II.



EXAMPLE 2 **Graph and label the point $M(0, -4)$.**

- Start at the origin.
- Move 0 units along the x-axis.
- Move 4 units down on the y-axis.
- Draw a dot and label it $M(0, -4)$.

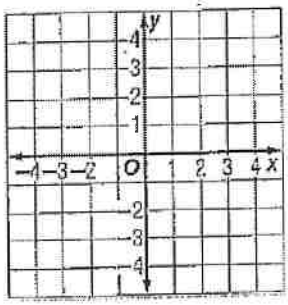
Name the ordered pair for each point graphed at the right. Then identify the quadrant in which each point lies.



1. P
2. Q
3. R
4. S

Graph and label each point on the coordinate plane.

5. $A(-1, 1)$
6. $B(0, -3)$
7. $C(3, 2)$
8. $D(-3, -1)$
9. $E(1, -2)$
10. $F(1, 3)$



Answer Key:

p. 2

1. 42
2. 120
3. 20
4. 3
5. 80
6. 8
7. 29
8. 110
9. 33.3
10. 1.9
11. 100.0
12. 103.1
13. 16.0
14. 281.1
15. 8.7
16. 27.8
17. 69.71
18. 5.57
19. 609.91
20. 247.90
21. 5.54
22. 67.20
23. 14.03
24. 6.94

p. 3

1. 481
2. 3.768
3. 460
4. 0.000712
5. 54
6. 27.5
7. 439,500
8. 0.000075
9. 22.74
10. 900
11. 0.618
12. 0.039006
13. 1600
14. 0.0028889
15. 368900
16. 0.00091
17. 3360
18. 0.01672

p. 4

1. $7 \cdot 7 \cdot 7$
2. $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$
3. $9 \cdot 9$
4. $15 \cdot 15 \cdot 15 \cdot 15$
5. 243
6. 343
7. 4096
8. 125
9. 2^4
10. 7^6
11. 10^3
12. 9^5
13. 12^3
14. 5^4
15. 6^5
16. 1^8

p. 5

1. 24
2. 0
3. 17
4. 3
5. 10
6. 3000
7. 18
8. 5
9. 9
10. 24
11. 17
12. 350

p. 6

1. 22/5
2. 43/8
3. 22/9
4. 41/7
5. 65/8
6. 59/4
7. 33/5
8. 91/10
9. 33/2
10. 8/1
11. 9/1
12. 31/4
13. 113/9
14. 83/8
15. 86/3

p. 7

1. 6/15
2. 12/32
3. 24/54
4. 42/49
5. 6/48
6. 33/44
7. 27/45
8. 6/60
9. 14/28
10. 70/700
11. 72/81
12. 51/68
13. 60/108
14. 42/112
15. 308/462

p. 8

1. 14/25
2. 1/3
3. 5/9
4. 3/7
5. 2/3
6. 2/3
7. 1/4
8. 9/14
9. 1/6
10. 5/6
11. $12\frac{6}{11}$
12. $15\frac{7}{8}$

p. 9

1. $1\frac{3}{5}$
2. $2\frac{4}{7}$
3. $4\frac{1}{9}$
4. $25\frac{2}{5}$
5. $3\frac{5}{9}$
6. $22\frac{4}{5}$
7. $42\frac{2}{3}$
8. $133\frac{2}{3}$
9. 6
10. $117\frac{1}{2}$
11. $61\frac{2}{3}$
12. 113
13. $6\frac{3}{4}$
14. $3\frac{1}{4}$
15. $28\frac{2}{3}$

p. 10

1. 2/5
2. 3/7
3. 7/18
4. 3/5
5. 5/18
6. 8/21
7. 2/5
8. 5
9. 9
10. 9/2
11. 77/20
12. 136/21

p. 11

1. 5/3
2. 9/8
3. 10/1
4. 6/1
5. 5/13
6. 3/5
7. 5/27
8. 4/29
9. 2
10. 7/10
11. 10/9
12. 8/15
13. 6/7
14. 2/9
15. 3/22
16. 15/7

p. 12

1. 7/10
2. 5/9
3. 7/18
4. 5/8
5. 17/15 or $3\frac{2}{15}$
6. 19/9 or $2\frac{1}{9}$
7. 1/5
8. 29/8 or $3\frac{5}{8}$
9. 29/12 or $2\frac{5}{12}$
10. 69/20 or $3\frac{9}{20}$
11. 8/9
12. 14/15

p. 13

1. 16
2. 19
3. 9
4. 3
5. 44
6. 14
7. 24
8. 61
9. 80
10. 51
11. 16
12. 16
13. 33
14. 104
15. 103

p. 14

1. 30
2. 6
3. 3
4. 5
5. 48
6. 70
7. 4
8. 132
9. 5
10. 25
11. 14
12. 3

p. 15

1. 2.16
2. 11.3
3. 12.55
4. 1/3
5. 7/8
6. 14/15
7. 3
8. 4
9. 10
10. 8/9
11. 10.5
12. 29/14

p. 16

1. no
2. yes
3. yes
4. no
5. yes
6. no
7. no
8. no
9. yes
10. 3
11. 16
12. 15
13. 10
14. 7.5
15. 15.4
16. 2.4
17. 12
18. 3.5

p. 17

1. 0.1
2. 0.36
3. 0.82
4. 0.491
5. 14%
6. 59%
7. 93.2%
8. 107%
9. 75%
10. 70%
11. 56.25%
12. 2.5%

p. 18

1. 72 m^2
2. 12 yd^2
3. 25 ft^2
4. 132 cm^2
5. 52 mi^2
6. 70 km^2

p. 19

1. (2, -3), quadrant 4
2. (-3, -2), quadrant 3
3. (1, 3), quadrant 1
4. (-2, 2), quadrant 2

5-8

