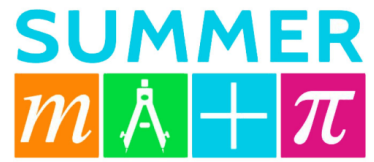


Name \_\_\_\_\_



**Summer 2025 Math Review Questions  
Rising 5th Grade**

This packet is to help you keep your math skills sharp over the summer break and is due when we return to school in September. Work should be completed on a separate piece of paper. Please show all work when possible. You are encouraged to complete a few questions each week and should not wait until the end of summer to complete everything. It is okay to ask for help from an adult! There may be a few concepts we did not get to and that is ok! TRY THEM!

**Number Sense**

- 1.) Write this number in standard form:  $600,000 + 7,000 + 200 + 40 + 1$
- 2.) I am a number between 60 and 70. I am a multiple of 8. What number am I?
- 3.) Write this number in word form: 340,216
- 4.) List all of the factors of 56 in order from least to greatest.
- 5.) Round this number to the nearest 1,000- 980,605
- 6.) Which number is less? 142,086 or 142,680
- 7.) What are the next four multiples of 6? 6, 12, \_\_\_\_, \_\_\_\_, \_\_\_\_, \_\_\_\_.
- 8.) What is the value of the underlined digit? 712,984
- 9.) Write this number in expanded form:  $500,000 + 50,000 + 0 + 100 + 70 + 2$
- 10.) The value of the 3 in 834,175 is ten times the value of the 3 in \_\_\_\_\_. 369,285 or 253,179
- 11.) Round to the nearest 10,000- 775,120
- 12.) Which number is greater? 639,844 or 639,851
- 13.) The rule is subtract 7. The starting number is 92.  
What are the next three numbers? 92, \_\_\_\_, \_\_\_\_, \_\_\_\_
- 14.) List all of the prime numbers from 70 to 80.
- 15.) List all of the composite numbers from 50 to 60.

## Problem Solving

1.) Estimate (Before adding, round each number to its greatest place value.)

$$\begin{array}{r} 519,421 \quad \rightarrow \\ + 178,056 \quad \rightarrow \quad + \\ \hline \end{array}$$

2.) Solve.  $869 \div 3$

3.) Estimate. (Before subtracting, round each number to its greatest place value.)

$$\begin{array}{r} 923,753 \quad \rightarrow \\ - 408,964 \quad \rightarrow \quad - \\ \hline \end{array}$$

4.) Estimate. (Before multiplying, round the multi-digit factor to its greatest place value)

$$\begin{array}{r} 8,159 \quad \rightarrow \\ \mathbf{x} \quad 7 \\ \hline \end{array} \quad \begin{array}{r} \mathbf{x} \quad 7 \\ \hline \end{array}$$

5.) Solve.  $478,395 + 236,240$

6.) Estimate. (Before dividing, round the dividend to the nearest thousand.)

$$3,695 \div 5$$

7.) \_\_\_\_\_ is twice as many as 4.

8.) Solve.  $795,046 - 58,937 =$

9.)  $4,409 \times 8 =$

10.) Solve.  $657,247 + 49,051 + 102,886 =$

11.) Solve.  $1,172 \div 7 =$

12.) Estimate (Before multiplying, round each number to its greatest place value.)

$$\begin{array}{r} 72 \rightarrow \\ \times 38 \rightarrow \end{array} \quad \times$$

13.) Solve.  $9,257 \div 6$

14.) Solve.  $68 \times 94$

15.) Solve.  $73 \times 25$

16.) Solve.  $36,117 + ? = 80,425$

17.) Solve.  $? - 14,799 = 52,366$

18.) Solve.  $70,000 - 35,612$

19.) Solve.  $800,000 - 419,581$

### Fractions

1.) What denominator makes these fractions equivalent? Hint- Think  $2 \times ? = 4$  then use whatever that number was and multiply it by 5. We have to multiply the top and the bottom by the same number.

$$\frac{2}{5} = \frac{4}{?}$$

2.) Solve.  $2 \frac{2}{10} + 4 \frac{7}{10}$

3.) Solve.  $\frac{7}{100} + \frac{6}{10}$

4.) Decompose  $\frac{4}{5} = \frac{\quad}{\quad} + \frac{\quad}{\quad} + \frac{\quad}{\quad} + \frac{\quad}{\quad}$

5.) Which fraction is less?

$$\frac{2}{5} \text{ OR } \frac{1}{6}$$

6.)  $\frac{3}{6} + 2\frac{5}{6}$

7.) Solve.  $7 - 5\frac{3}{4}$

8.) Solve.  $3\frac{9}{12} + 1\frac{5}{12}$

9.) Solve.  $\frac{5}{10} + \frac{29}{100}$

10.) Solve.  $\frac{3}{1} \times \frac{9}{10}$

### Geometry

- 1.) How many minutes are in 8 hours and 24 minutes? (remember: there are 60 minutes in 1 hour)
- 2.) A right angle is divided into two angles. One angle measures 23 degrees. What does the other angle measure? Hint: How many degrees is a right angle? Use that to subtract.
- 3.) The side of a regular pentagon is 28 cm. What's the perimeter?  
*Hint: Pentagons have 5 equal sides. Perimeter is the sum of all sides.*

Name \_\_\_\_\_

Summer 2025 Math Review Questions  
Rising 6th Grade



This packet is to help you keep your math skills sharp over the summer break and is due when we return to school. Work should be completed on a separate piece of paper. Please show all work when possible. You are encouraged to complete a few questions each week and should not wait until the end of summer to complete everything. It is okay to ask for help from an adult!

1.) Find each sum or difference.

a.)  $17 - 5.47$

b.)  $16.35 + 1.0982$

c.)  $5.07 + 3.98$

d.)  $42.7 + 4.036 + 8.1$

e.) Leo gave the cashier \$60 for a CD set priced at \$52.98. How much change did Leo receive?

2.) Find each product.

a.)  $55.8 \times 0.04$

b.)  $32.7 \times 4.9$

c.)  $3.89 \times 5.9$

d.)  $4.68 \times 0.67$

e.) Ground beef sells for \$.259 per pound. Find the price for 4.5 pounds of ground beef.

3.) Use the order of operations to evaluate each expression.

a.)  $14 - 6 \div 2$

b.) **Number Sense:** Would the value of  $(12 - 4) \div 2 + 7$  change if the parentheses were removed? Explain your thinking.

c.)  $16 - (4 + 9)$

d.)  $4 + 2 \times 6$

e.)  $4 \times (6 - 1.5)$

f.)  $(15 - 8) \times (2 + 6)$

g.)  $0.25 \times 8 + (15 \div 5)$

h.)  $12 \times (10 - 3) + (1.8 \div 3)$

i.)  $(25 + 5) \div (6 - 1)$

j.)  $(10 - 7) \times 5 - 2 \times 3$

k.) **Number Sense:** Which is greater,  $1 \times 7 + 4$  or  $1 + 4 \times 7$ ?

4.) Find each quotient. Check your answers by multiplying. (Round to the nearest cent if necessary.)

a.)  $\$8.72 \div 24$

b.)  $\$9.80 \div 55$

c.)  $\$97.50 \div 78$

d.)  $\$102.77 \div 43$

e.)  $\$2.97 \div 38$

f.)  $\$40.14 \div 30$

g.)  $\$110.08 \div 43$

h.) Sara has been offered two part-time jobs this summer. The first job, at a garden center, pays \$136.00 for every 16 hours worked. The second job, at the community swimming pool, pays \$199.50 for every 21 hours worked. Which job would pay Sara more per hour?

5.) Write each improper fraction as a mixed number.

a.)  $\frac{5}{3}$

b.)  $\frac{26}{5}$

c.)  $\frac{10}{3}$

6.) Write each mixed number as an improper fraction.

a.)  $3\frac{4}{9}$

b.)  $4\frac{1}{2}$

c.)  $6\frac{3}{5}$

7.) **Reasoning:** Can an improper fraction equal one? Can it be less than 1? Explain.

8.) Write each fraction in simplest form.

a.)  $\frac{20}{100}$

b.)  $\frac{3}{63}$

c.) Marcy is working on her homework. She thinks that  $\frac{45}{95}$  is in simplest form. Without finding all the factors, how do you know she is incorrect?

9) Write  $>$ ,  $<$ , or  $=$  for each comparison. You may use fractions strips or drawings to help.

a.)  $\frac{1}{4}$     $\frac{2}{8}$

b.)  $\frac{3}{10}$     $\frac{2}{10}$

c.) Charles swam  $\frac{7}{8}$  mile. Mary swam  $\frac{7}{12}$  mile. Who swam farther?

10) Compare. Write  $>$ ,  $<$ , or  $=$  for each comparison.

a.)  $5\frac{1}{9}$     $5\frac{2}{5}$

b.)  $\frac{2}{7}$     $\frac{1}{6}$

11) Order the numbers from the least to the greatest.

a.)  $\frac{4}{5}$ ,  $\frac{4}{7}$ ,  $\frac{9}{10}$ ,  $\frac{7}{8}$

12) Each student is given the same book to read. Bret read  $\frac{4}{5}$  of the book. Cale read  $\frac{2}{3}$  of the book. Cheri read  $\frac{5}{6}$  of the book. Who read the most?

13) Estimate the sum first. Then add. Simplify, if necessary.

a.)  $8\frac{3}{4}$  +  $5\frac{1}{6}$

b.)  $4\frac{3}{5}$  +  $2\frac{3}{10}$

c.)  $7\frac{5}{12}$  +  $6\frac{3}{4}$

d.)  $2\frac{9}{10}$  +  $2\frac{1}{4}$

e.)  $1\frac{7}{8}$  +  $2\frac{1}{4}$

f.)  $4\frac{1}{24}$  +  $5\frac{1}{16}$

g.) Mrs. Kern placed  $2\frac{1}{4}$  lb of bananas and  $3\frac{3}{8}$  lb of grapes into a basket. If the basket weighs  $\frac{1}{2}$  lb by itself, how much did the basket with the fruit weigh?

14) Estimate the difference first. Then subtract. Simplify, if necessary.

a.)  $2\frac{7}{8} - 1\frac{1}{2}$

b.)  $8 - 3\frac{3}{7}$

c.)  $6\frac{5}{6} - \frac{3}{4}$

d.)  $3\frac{1}{2} - 1\frac{7}{8}$

e.)  $4\frac{7}{10} - 2\frac{5}{6}$

f.) One tree is  $19\frac{1}{2}$  feet tall. Another tree nearby is  $16\frac{3}{4}$  feet tall. What is the difference in their heights?

15) Multiply or Divide Fractions

a)  $\frac{3}{4} \times \frac{3}{5} =$

b)  $\frac{4}{9} \times 12 =$

c)  $\frac{1}{3} \times \frac{1}{4} \times \frac{3}{4} =$

d)  $30 \times \frac{5}{8} =$

e)  $15 \div \frac{3}{5} =$

f)  $\frac{3}{8} \div 12 =$

g) How many  $\frac{1}{5}$ s are in 1?

h) How many  $\frac{2}{5}$ s are in 4?

i)  $\frac{2}{9} \div \frac{1}{6} =$

j)  $\frac{5}{6} \div \frac{3}{4} =$

16) Find the area of each figure.

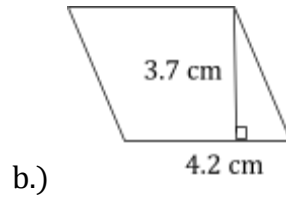
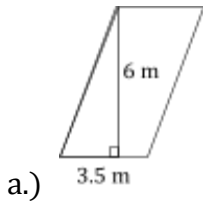
a.) A square with a side of 25 ft

b.) A rectangle with sides of 4.7 cm and 6.5 cm

c.) A rectangle with sides of 7 mi and 9 mi

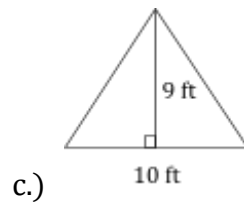
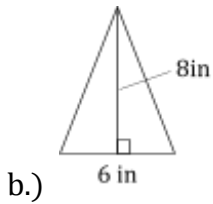
d.) The area of a rectangle is  $36 \text{ ft}^2$ . If it is 9 ft long, how wide is it?

17) Find the area of each parallelogram.

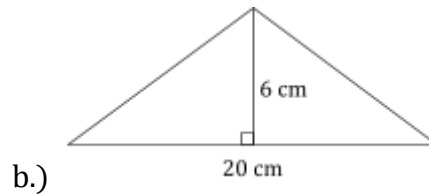
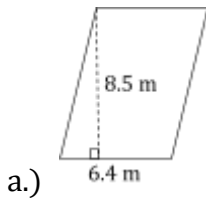


18) Find the area of each triangle.

a.) The base of a right triangle is 4 cm and its height is 9 cm. What is the area of the triangle?



19) Find the area of each parallelogram or triangle.

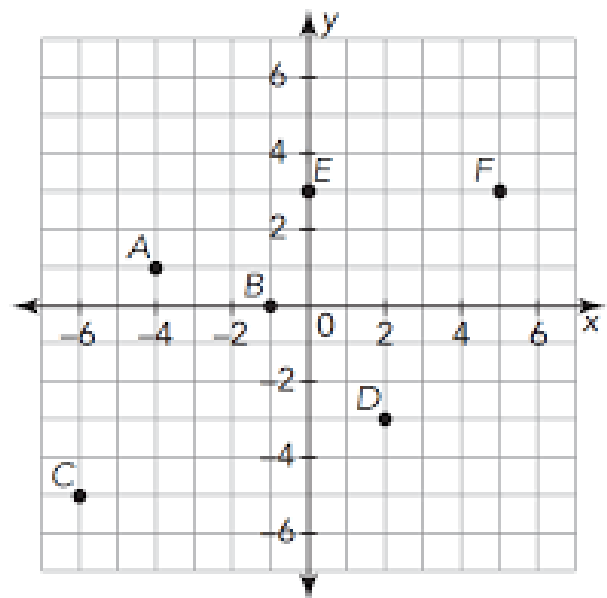


20) What is a coordinate plane?

21) How many quadrants are there and what are their signs?

22) Use the coordinate plane to answer the following questions:

- Name the point at the ordered pair:  $(-1, 0)$
- Name the point at the ordered pair:  $(-6, -5)$
- Write the ordered pair for point E.
- Write the ordered pair for point A.



23) Write each word phrase as an expression:

a) the difference of  $y$  and 9

b) Rhonda is 3 years younger than Joe. Use  $j$  for Joe's age and write an expression to show Rhonda's age.

c) the product of  $n$  and 7

d) the quotient of  $x$  and 2

24) Solve the equation:

a)  $7m = 56$ ,  $m = ?$

b)  $12p = 0$ ,  $p = ?$

c)  $4x = 3x + 5$

d)  $2x + x = x + 8$

e)  $3x + 1 = x + 7$

f)  $4x + 2 = 3x + 9$

g)  $5x + 2 = 2x + 14$

Name \_\_\_\_\_

Rising 7th Grade

A graphic with an orange background and rounded corners. The word "Pre-Algebra" is written in a large, bold, white sans-serif font in the center. The background is filled with faint, light-colored mathematical symbols and equations, including  $(6 + 4)$ ,  $x - 3 = 7x + 5$ ,  $x + 2 > 8$ , and  $11$ .

### Summer 2025 Math Review Questions

This packet is to help you keep your math skills sharp over the summer break, reviewing and expanding on concepts from 6th grade to prepare you for Pre-Algebra. Practicing math skills over the summer can help keep your brain's math pathways strong.

Your packet is due on the first day of school to your math teacher.

A few things to keep in mind:

1. Please show all work when possible. Use extra paper if necessary.
2. Try to complete the work without a calculator or the internet. We aren't checking if the calculator or AI can solve the problems. Remember, you may not have access to these during a test.
3. Be neat and organized! Part of success in math is being able to organize your work and keep track of your calculations and steps. Box or circle your final answer.
4. Do not rush! Take advantage of the summer pace and plan on doing some of the packet each week. It will not help you if you cram it into the last week of summer break.
5. If you are stuck on a problem, use your math notes from last year (hopefully you kept them!). There are also some helpful reminders at the back of the packet for some of the key concepts.

Happy Summer!

Mrs. PB

## MIXED INTEGER REVIEW

Add, subtract, multiply or divide the following integers. Do not use a calculator:

1)  $2 + (-7)$

2)  $4 - (-3)$

1) \_\_\_\_\_ 2) \_\_\_\_\_

3)  $15 \div 3$

4)  $(-9)(-7)$

3) \_\_\_\_\_ 4) \_\_\_\_\_

5) \_\_\_\_\_ 6) \_\_\_\_\_

5)  $-3 - (-6)$

6)  $-4 - 5$

7) \_\_\_\_\_ 8) \_\_\_\_\_

9) \_\_\_\_\_ 10) \_\_\_\_\_

7)  $7 + 3$

8)  $-2 + (-6)$

11) \_\_\_\_\_ 12) \_\_\_\_\_

13) \_\_\_\_\_ 14) \_\_\_\_\_

9)  $-4 \cdot 5$

10)  $-12 - (-7)$

15) \_\_\_\_\_ 16) \_\_\_\_\_

17) \_\_\_\_\_ 18) \_\_\_\_\_

19) \_\_\_\_\_ 20) \_\_\_\_\_

11)  $-15 + 7$

12)  $11 \cdot 5$

13)  $8 - (-21)$

14)  $(3)(-9)$

15)  $-24 \div 4$

16)  $-9 + (-13)$

17)  $(-2)(-25)$

18)  $-50 - 30$

19)  $\frac{-56}{-8}$

20)  $32 + (-37)$

Evaluate each expression.

1. $5.983 + 2.99$	2. $224 - 56.73$	3. $6.12 - 4.923$
4. $24.5 \cdot 3.2$	5. $0.23 \cdot 7$	6. $3.86 \cdot 9.15$
7. $14.8 \div 5$	8. $46.3 \div 1.5$	9. $147 \div 2.25$
10. $24.33 - 2.5 \cdot 7$	11. $3.9 + 4.5^2$	12. $9.25(18.4 - 2 \cdot 1.2)$

Solve each word problem, showing all work.

13. Jeff had \$46.18 in his wallet Monday morning. He gave half of his money to his brother. He then bought two donuts for \$0.75 each and a cup of coffee for \$2.99. How much money did Jeff have left?	14. Five friends split a \$65.20 bill at a restaurant. They also each left \$2.75 for the tip. How much money did each person pay in all?
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Evaluate each expression.

15. $\frac{4}{5} + \frac{3}{4}$	16. $4\frac{2}{7} + 2\frac{9}{14}$	17. $8\frac{11}{12} + 9\frac{5}{18}$
18. $6 - \frac{3}{8}$	19. $8\frac{3}{5} - 2\frac{1}{3}$	20. $4\frac{1}{6} - \frac{8}{9}$
21. $\frac{4}{25} \cdot \frac{15}{16}$	22. $2\frac{3}{4} \cdot 8$	23. $6\frac{5}{8} \cdot 3\frac{1}{2}$
24. $\frac{7}{9} \div \frac{2}{3}$	25. $\frac{4}{5} \div 10$	26. $5\frac{2}{3} \div 2\frac{5}{6}$

Solve each word problem, showing all work.

27. Jaimie ran $3\frac{1}{2}$ miles on Monday. She ran half as far on Tuesday as she did on Monday. How far did Jaimie run in all on Monday and Tuesday?	28. A $5\frac{1}{2}$ quart pot is filled $\frac{2}{3}$ of the way with water. How many more quarts of water can the pot hold?
--	---

Write each ratio in 3 ways.

<p>29. A bank contains 15 pennies and 12 nickels. Write the ratio of nickels to pennies.</p>	<p>30. A bowl contains 6 apples and some bananas. If there are a total of 10 pieces of fruit, find the ratio of apples to bananas.</p>
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Convert each rate to a unit rate.

<p>31. \$4.25 for 64 fluid ounces</p>	<p>32. 297 miles on 11 gallons of gas</p>	<p>33. 124 feet in 10 seconds</p>
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Complete the chart by converting each number to a percent, fraction, and/or decimal.

Fraction	Decimal	Percent
34. $\frac{3}{8}$		
35.	0.45	
36.		72%
37.	0.1	
38. $\frac{3}{200}$		

Find each percent of a number.

39. 30% of 90	40. 15% of 38	41. 50% of 86
42. 75% of 160	43. 24% of 35	44. 2% of 74

Compare the integers with  $<$ ,  $>$ , or  $=$ .

45. $-4 \bigcirc -5$	46. $2 \bigcirc -2$	47. $ -5  \bigcirc  5 $	48. $-7 \bigcirc 6$	49. $-13 \bigcirc -9$
50. $ -7  \bigcirc -6$	51. $-17 \bigcirc -14$	52. $ -3  \bigcirc  -2 $	53. $0 \bigcirc -6$	54. $ -4  \bigcirc  6 $

Graph and label each of the ordered pairs in the coordinate plane. Then state the quadrant or axis in/on which the point is located.

55. A(2, 4)	56. B(0, -3)	
57. C(1, -1)	58. D(3, 3)	
59. E(-4, 1)	60. F(2, 0)	
61. G(-3, -2)	62. H(-2, 3)	
63. I(0, 2)	64. J(-1, -4)	

Find the perimeter, area, and/or volume of the given figure.

<p>65. Find the perimeter &amp; area:</p>	<p>66. Find the perimeter &amp; area:</p>	<p>67. Find the perimeter &amp; area:</p>
<p>68. Find the perimeter &amp; area:</p>	<p>69. Find the area of a square with a perimeter of 45 cm</p>	<p>70. Find the volume:</p>

Evaluate each expression for  $a = 5$ ,  $b = 12$ ,  $c = 10$ , &  $d = 2$ .

71. $2b - a$	72. $d(ab - c)$	73. $3 + \frac{b}{a}$
74. $\frac{4a}{b + 4d}$	75. $2a^2 - c$	76. $b - c + d$

Solve each one-step equation.

77. $g + 3 = 17$	78. $r - 6 = 7$	79. $6b = 18$	80. $\frac{h}{9} = 3$
81. $5 = f - 8$	82. $48 = 12b$	83. $a + 24 = 83$	84. $17 + x = 23$
85. $10 = \frac{m}{5}$	86. $86.5 = f - 7.63$	87. $\frac{n}{6} = 11$	88. $\frac{3}{4}h = 12$

Solve each word problem using the method of your choice.

89. A fencing company charges \$22 per foot to install a wood fence. How much will it cost to install a wood fence around a rectangular pool area that is 20 feet wide and 38 feet long?

90. A 6 inch-tall plant grew  $\frac{3}{4}$  of an inch one week and twice as much the following week. How tall is the plant now?

91. Jack can read 45 pages of his book in one and a half hours. At that rate, how long will it take him to read the entire 300-page book?

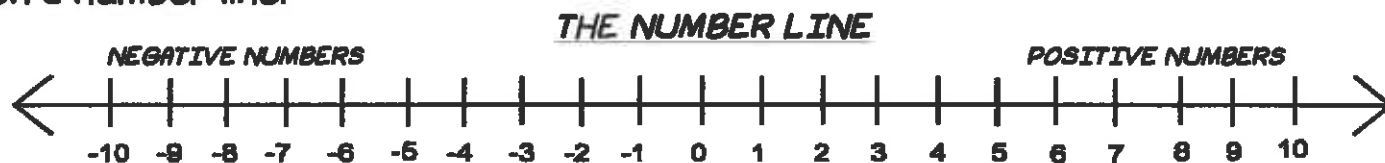
92. Brian ordered 3 large cheese pizzas and a salad. The salad cost \$4.95. If he spent a total of \$47.60 including the \$5 tip, how much did each pizza cost? (Assume there is no tax).

93. A cookie recipe calls for  $3\frac{1}{4}$  cups of flour. The recipe makes 3 dozen cookies. How much flour is needed to make 144 cookies?

94. Ella has a box of chocolate candies. She gives  $\frac{1}{3}$  of the candies to her sister, 4 to her brother, and she eats the remaining 12 candies. How many chocolate candies were in the box originally?

# INTEGER CHEAT SHEET

**Integers-** A set of positive and negative whole numbers. They can be represented on a number line.



**Absolute Value-** The distance a number is from zero on the number line. An absolute value is never negative. Examples:  $|-5| = 5$  and  $|5| = 5$

## ADDING INTEGERS

**SAME SIGN-** Add and Keep the Sign!

Add the absolute value of the numbers and keep the same sign.

(positive) + (positive) = Positive

$$(+4) + (+5) = +9$$

(negative) + (negative) = Negative

$$(-4) + (-5) = -9$$

**DIFFERENT SIGNS-** Subtract and Keep the Sign of the Bigger Number!

Subtract the absolute value of the numbers and keep the sign of the bigger number.

$$(-4) + (+5) = +1$$

$$(+4) + (-5) = -1$$

## SUBTRACTING INTEGERS

Do not subtract integers. You must change the signs:

**"Add the Opposite"**

**KEEP-** Keep the sign of the first number

**CHANGE-** Change the subtraction sign to addition

**CHANGE-** Change the sign of the second number to the opposite sign. If it is positive- change to negative. If it is negative- change to positive.

$$(+4) - (-4)$$

Keep    change    change  
(+4)       +       (+4)

**NOW USE THE RULES FOR ADDING:**

**SAME SIGN-** Add absolute values and keep sign:

$$(+4) + (+4) = 8$$

## MULTPLYING INTEGERS

**SAME SIGNS- POSITIVE**

Multiply the numbers. Answer will be positive.

$$(-5) \times (-5) = +25$$

**DIFFERENT SIGNS- NEGATIVE**

Multiply the numbers. Answer will be negative

$$(+5) \times (-5) = -25$$

## DIVIDING INTEGERS

**SAME SIGNS- POSITIVE**

Divide the numbers. Answer will be positive.

$$(-5) \div (-5) = +1$$

**DIFFERENT SIGNS- NEGATIVE**

Divide the numbers. Answer will be negative

$$(+5) \div (-5) = -1$$

## Adding & Subtracting Decimals

1. Write the problem vertically, lining up the decimal points.
2. Add additional zeroes at the end, if necessary, to make the numbers have the same number of decimal places.
3. Add/subtract as if the numbers are whole numbers
4. Bring the decimal point straight down

ex:  $14.2 - 7.934$

$$\begin{array}{r} 14.200 \\ - 7.934 \\ \hline 6.266 \end{array}$$

## Multiplying Decimals

1. Write the problem vertically with the numbers lined up to the right. The decimal points do NOT need to be lined up.
2. Ignore the decimals and multiply as if the numbers are whole numbers.
3. Count the total number of decimal places in the factors and put a decimal point in the product so that it has that same number of decimal places.

ex:  $6.94 \times 7.8$

$$\begin{array}{r} 6.94 \rightarrow 2 \text{ decimal places} \\ \times 7.8 \rightarrow 1 \text{ decimal place} \\ \hline + 5552 \\ 48580 \\ \hline 54132 \end{array}$$

3 decimal places

$\downarrow$

$54.132$

## Dividing Decimals

1. Write the dividend under the long division symbol and the divisor to the left of it.
2. Move the decimal point in the divisor after the number to turn it into a whole number and then move the decimal in the dividend the same number of places. Then bring it up.
3. Divide as if the numbers are both whole numbers.
4. Annex zeros in the dividend as needed until there is no remainder. If your answer is a repeating decimal, write the answer using bar notation.

ex:  $25.3 \div 0.3$

$$\begin{array}{r} 84.\overline{3} \\ 0.3 \overline{) 25.30} \\ \underline{-24} \phantom{0} \\ 13 \phantom{0} \\ \underline{-12} \phantom{0} \\ 10 \\ \underline{-9} \\ 1 \end{array}$$

## Order of Operations

1. Grouping Symbols (parentheses, brackets, etc.)
2. Exponents
3. Multiplication & Division (left to right)
4. Addition & Subtraction (left to right)

ex:  $5 + 4(3 - 1.2)$

$$5 + 4(1.8)$$

$$5 + 7.2$$

$$\boxed{12.2}$$

## Adding Fractions & Mixed Numbers

1. Find a common denominator for the two fractions.
2. Add the two numerators and keep the denominator the same.
3. Add the whole numbers.
4. Simplify the answer and/or change improper fraction answers to mixed numbers.

ex:  $3\frac{3}{4} + 2\frac{1}{2}$

$$\begin{array}{r} 3\frac{3}{4} = 3\frac{3}{4} \\ + 2\frac{1}{2} = 2\frac{2}{4} \\ \hline 5\frac{5}{4} = \boxed{6\frac{1}{4}} \end{array}$$

## Subtracting Fractions & Mixed Numbers

1. Find a common denominator for the two fractions.
2. Subtract the two numerators and keep the denominators the same.  
If the top numerator is smaller than the bottom numerator, borrow from the whole number and rename the top fraction.
3. Subtract the whole numbers.
4. Simplify the answer.

ex:  $5\frac{1}{4} - 1\frac{2}{3}$

$$\begin{array}{r} 5\frac{1}{4} = 5\frac{3}{12} = 4\frac{15}{12} \\ - 1\frac{2}{3} = 1\frac{8}{12} = 1\frac{8}{12} \\ \hline 3\frac{7}{12} \end{array}$$

## Multiplying Fractions & Mixed Numbers

1. Turn any mixed numbers and whole numbers into improper fractions.
2. Cross-simplify if possible.
3. Multiply the numerators and then multiply the denominators
4. Simplify the answer and/or change improper fraction answers to mixed numbers.

ex:  $2\frac{1}{6} \cdot \frac{4}{7}$

$$\frac{13}{\cancel{3}6} \cdot \frac{\cancel{4}^2}{7} = \frac{26}{21} = \boxed{1\frac{5}{21}}$$

## Dividing Fractions & Mixed Numbers

1. Turn any mixed numbers and whole numbers into improper fractions.
2. Keep the first fraction the same, change the division to multiplication, and flip the second fraction to its reciprocal.
3. Multiply the fractions.
4. Simplify the answer and/or change improper fraction answers to mixed numbers.

ex:  $7 \div 1\frac{3}{4}$

$$\begin{array}{r} \frac{7}{1} \div \frac{7}{4} \\ \downarrow \\ \frac{7}{1} \cdot \frac{4}{\cancel{7}} = \frac{4}{1} = \boxed{4} \end{array}$$

## Ratios

Ratios are comparisons of two quantities.  
There are 3 different ways to write ratios:

- Fraction  $\left(\frac{A}{B}\right)$
- Colon (A:B)
- Word Form (A to B)

ex: write the ratio of triangles to circles  
in 3 ways:  $\triangle \triangle \triangle \triangle \circ \circ$

$$\frac{4}{2} = \frac{2}{1}, 2:1, 2 \text{ to } 1$$

Ratios can be simplified just like fractions.

## Rates & Unit Rates

Rates are ratios that compare quantities measured in different units.  
A unit rate is a rate with a denominator of 1.

ex: express as a unit rate:  
125 miles in 4 hours

To convert a rate to a unit rate:

1. Divide the numerator by the denominator
2. Either write your answer as a fraction with a label for the both the numerator and denominator OR as one number labeled with the first unit "per" the second unit

$$\frac{125 \text{ mi}}{4 \text{ hr}} \quad 125 \div 4 = 31.25$$

$$\frac{31.25 \text{ mi}}{1 \text{ hr}} \text{ or } 31.25 \text{ miles per hr}$$

## Fractions, Decimals, & Percent

To convert a:

- Decimal to Percent: move the decimal point 2 places to the right
- Percent to Decimal: move the decimal point 2 places to the left
- Decimal to Fraction: write the decimal over the place value of the last digit and then simplify
- Fraction to Decimal: divide the numerator by the denominator
- Percent to Fraction: write the percent over 100 and then simplify
- Fraction to Percent: convert the fraction to a decimal and then convert the decimal to a percent

ex:  $0.345 = 34.5\%$

ex:  $7\% = 0.07$

ex:  $0.008 = \frac{8}{1000} = \frac{1}{125}$

ex:  $\frac{1}{5} = 5 \overline{)1.0}$

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

ex:  $\frac{3}{10} = 0.3 = 30\%$

## Percent of a Number

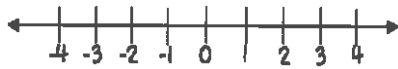
1. Turn the percent to a fraction or decimal.
2. Multiply the fraction/decimal by the number.

ex: Find 18% of 40

$$0.18 \cdot 40 = 7.2$$

# Comparing Integers

Integers are numbers without fractional parts. They can be positive, negative, or zero. The further right a number is on the number line, the greater it is.



The absolute value of a number is the distance the number is from zero.

ex: compare with  $<$ ,  $>$ , or  $=$

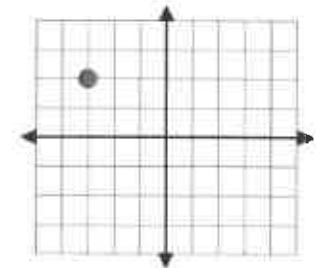
$-7$   $\bigcirc$   $|-9|$   $\leftarrow$  The absolute value of  $-9 = 9$

$-7$   $\boxed{<}$   $9$

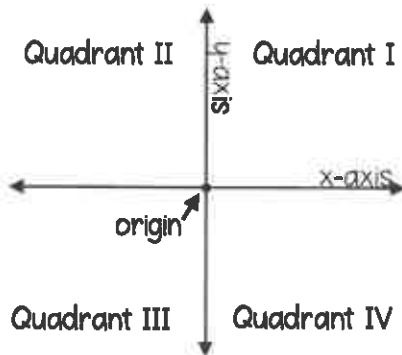
# The Coordinate Plane

ex: Graph the point  $(-3, 2)$  and state the quadrant in which it is located.

Start at the origin, and move LEFT 3 and UP 2



Quadrant II



To graph a point on the coordinate plane, start at the origin. The first number in the ordered pair (the x-coordinate) tells you how far left (if negative) or right (if positive) to move. The second number (the y-coordinate) tells you how far up (if positive) or down (if negative) to move.

Ordered Pair:  $(x, y)$

# Perimeter, Area and Volume

- Perimeter of Any Polygon: add all side lengths

ex: Find the perimeter & area:

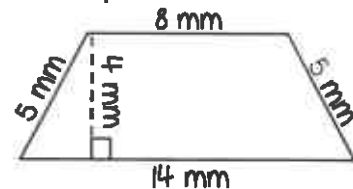
- Area of a Rectangle:  $A = lw$

- Area of Parallelogram:  $A = bh$

- Area of Triangle:  $A = \frac{1}{2}bh$

- Area of Trapezoid:  $A = \frac{1}{2}h(b_1 + b_2)$

- Volume of Rectangular Prism:  $V = lwh$



Perimeter:  $P = 5 + 8 + 5 + 14 = \boxed{32 \text{ mm}}$

Area: This is a trapezoid, so use the area of a trapezoid

formula:  $A = \frac{1}{2}h(b_1 + b_2)$

The bases are the sides that are parallel, and the height is perpendicular to the bases.

$\rightarrow A = \frac{1}{2}(4)(8+14) = \boxed{44 \text{ mm}^2}$

## Evaluating Algebraic Expressions

1. Substitute the given numbers for the variables
2. Evaluate the expression using the order of operations

ex: evaluate  $x + 4y$  for  
 $x = 4$  &  $y = 6$

$$\begin{array}{r} 4 + 4(6) \\ 4 + 24 = \boxed{28} \end{array}$$

## One-Step Addition & Subtraction Equations

- Addition Equations: Subtract the number being added to the variable from both sides of the equation

$$\begin{array}{r} \text{ex: } 4 + x = 18 \\ -4 \quad -4 \\ \hline x = \boxed{14} \end{array}$$

- Subtraction Equations: Add the number being subtracted from the variable to both sides of the equation

$$\begin{array}{r} \text{ex: } 20 = a - 5 \\ +5 \quad +5 \\ \hline 25 = a \rightarrow \boxed{a = 25} \end{array}$$

## One-Step Multiplication & Division Equations

- Multiplication Equations: Divide both sides of the equation by the number next to the variable

$$\begin{array}{r} \text{ex: } 7b = 28 \\ \cancel{7} \quad \cancel{7} \\ \hline \boxed{b = 4} \end{array}$$

- Division Equations: Multiply both sides of the equation by the number under the variable

$$\begin{array}{r} \text{ex: } 5 \cdot \frac{n}{5} = 10 \cdot 5 \\ \cancel{5} \quad \cancel{5} \\ \hline \boxed{n = 50} \end{array}$$

## Problem Solving

1. Read the problem. Identify the question that is being asked and the key information in the problem.
2. Plan how you are going to solve the problem and estimate the answer.
3. Solve the problem using the strategy of your choice.
4. Check your answer. Make sure your answer is reasonable and compare it to your estimate. Label your answer with appropriate units.

# ALGEBRA

## Summer 2025 Math Packet

Algebra 1 is a fast-paced course that covers a wide range of skills and concepts. To set us off the right track as the year begins, this packet contains both review questions as well as content from the first two chapters of the course. Don't worry, it's nothing super complicated!

Your completed packet is due the first day of school. You can also expect a test shortly after school begins that covers this material. Not to worry, it won't be on the first day!

A few things to keep in mind:

1. Please show all work when possible. Use extra paper if necessary.
2. Try to complete the work without a calculator or the internet. We aren't checking if the calculator or AI can solve the problems. Remember, you may not have access to these during a test.
3. Be neat and organized! Part of success in math is being able to organize your work and keep track of your calculations and steps. Circle or box your final answer.
4. Do not rush! You are encouraged to complete a few questions each week and should not wait until the end of summer to complete everything.
5. It is okay to ask for help from an adult! If you are really stuck on a problem, send us an email at [mpb@standrewsum.org](mailto:mpb@standrewsum.org) or [mrd@standrewsum.org](mailto:mrd@standrewsum.org).

Happy Summer!

Mrs. PB & Mr. D

# VARIABLES & EXPRESSIONS

Translate each algebraic expression or verbal expression.

VERBAL EXPRESSION	ALGEBRAIC EXPRESSION
8 times a number $x$ is subtracted by 4	
	$6x^2 + 7$
5 increased by the product of -3 and a number $x$	
	$3x + 4y - 2$
3 times the sum of a number $x$ and 7	
	$\frac{x}{2} + 4x$
A number $y$ cubed plus $x$ squared decreased by 7	
	$5(x - 4) + 2$
the difference of $x$ and $y$ is divided by 3 and added by 8	
	$-2(x + 4)^2 - 1$

# ORDER OF OPERATIONS

Simplify each expression using the order of operations.

1.  $5 - 6 + 2(3)$

2.  $4 + 5(7 - 1) + \frac{8}{2}$

3.  $-9(4 + 2) - 2(3) + 4^2$

4.  $7 - 2[-6 - (3 + 1)] - \frac{8+7}{3}$

5.  $0.5(-8 - 4) + 3(8 - 2^2)$

6.  $3 - 5(2) - 7(5^2 - 4^2)$

7.  $2(3)^2 - 4(3) + 1$

8.  $4(3 - 5)^3 + 5$

# THE NUMBER PROPERTIES

---

Match each expression with the property that it shows.

$$5 + 0 = 5$$

Commutative Property  
of Addition

$$5(1) = 5$$

Associative Property  
of Addition

$$5(0) = 0$$

Additive Identity

$$2 + 3 = 3 + 2$$

Distributive Property

$$2(3) = 3(2)$$

Commutative Property  
of Multiplication

$$2 + (3 + 4) = (2 + 3) + 4$$

Associative Property  
of Multiplication

$$2(3 \cdot 4) = (2 \cdot 3)4$$

Zero Product Property

$$3(2 + 5) = 6 + 15$$

Multiplicative Identity

# EVALUATING EXPRESSIONS

Evaluate each expression given the following values for each variable.

$a = 2$	$b = -3$	$c = 4$	$d = -5$	$e = 6$	$f = -7$
---------	----------	---------	----------	---------	----------

1. $2a + 3d$	2. $b^2 - e^2$
3. $-3c - (a + d) + f$	4. $2(b - e) + (f + c)^2$
5. $\frac{d - c}{3} - 4(ab + f)$	6. $c(ab - 1) + de - f^2$

# MULTIPLYING & DIVIDING FRACTIONS

Multiply or divide the fractions. Simplify your answer.

$$\frac{5}{2} \cdot \frac{1}{2} =$$

$$\frac{1}{3} \cdot \frac{1}{3} =$$

$$\frac{1}{4} \cdot \frac{2}{4} =$$

$$-\frac{2}{5} \cdot \frac{3}{5} =$$

$$\frac{3}{6} \cdot -\frac{5}{6} =$$

$$-\frac{1}{4} \cdot -\frac{8}{7} =$$

$$4\left(\frac{5}{8}\right) =$$

$$-3\left(\frac{2}{3}\right) =$$

$$-2\left(\frac{4}{9}\right) =$$

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

$$\frac{2}{9} \div \frac{1}{3} =$$

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

$$-\frac{2}{3} \div \frac{1}{5} =$$

$$\frac{3}{6} \div -\frac{5}{4} =$$

$$-\frac{1}{2} \div -\frac{8}{7} =$$

# COMBINING LIKE TERMS

Combine like terms for each expression.

EXPRESSION	SIMPLIFIED
$x + x + 3x + y$	
$y + 2y + 5x + x$	
$5 + z + z + 4z - 6$	
$3x + 4x - 5$	
$5c + 2b - 3c$	
$x + y + 2x$	
$6a - 5b + a$	
$4 + 3x - 7 - 8x$	
$3(x + 2) - 4$	
$-5(x - 3) + 7x$	
$5m - 6n - 9m$	
$-8a - 9b - 10a + 9b$	
$2(x + 4) + 5x - 3$	
$-10(2 + x) - 3x$	

# SOLVING ONE-STEP EQUATIONS

---

Solve the one-step equations.

$$x + 7 = 9$$

$$5 + x = -3$$

$$6 = x + 8$$

$$x - 9 = 1$$

$$-5 + x = -2$$

$$4 = x - 7$$

$$5x = 75$$

$$-2x = -64$$

$$-7.5 = 1.25x$$

$$\frac{x}{4} = 7$$

$$-\frac{x}{2} = 8$$

$$-3 = -\frac{x}{9}$$

$$\frac{3}{4}x = 7$$

$$-\frac{1}{2}x = 8$$

$$-5 = -\frac{2}{9}x$$

# SOLVING TWO-STEP EQUATIONS

---

Solve the two-step equations. Leave your answer as a simplified fraction.

$$2x + 7 = 9$$

$$5 + 4x = -3$$

$$6 = 2x + 8$$

$$4x - 9 = 1$$

$$-5 + 3x = -2$$

$$4 = -x - 7$$

$$5x + 10 = 75$$

$$-2x + 8 = -64$$

$$-7.5 = 1.25x + 2.5$$

$$\frac{x}{4} - 6 = 7$$

$$-\frac{x}{2} + 3 = 8$$

$$-3 = 8 - \frac{x}{9}$$

$$\frac{3}{4}x + 5 = 7$$

$$-\frac{1}{2}x - 4 = 8$$

$$-5 = -\frac{2}{9}x + 2$$

# RATIOS

Create the ratios for each situation.

To create a perfect fruit smoothie for you and your friends, you must use 5 strawberries, 9 blueberries, 1 banana, 4 slices of pineapple, and 3 slices of mango.

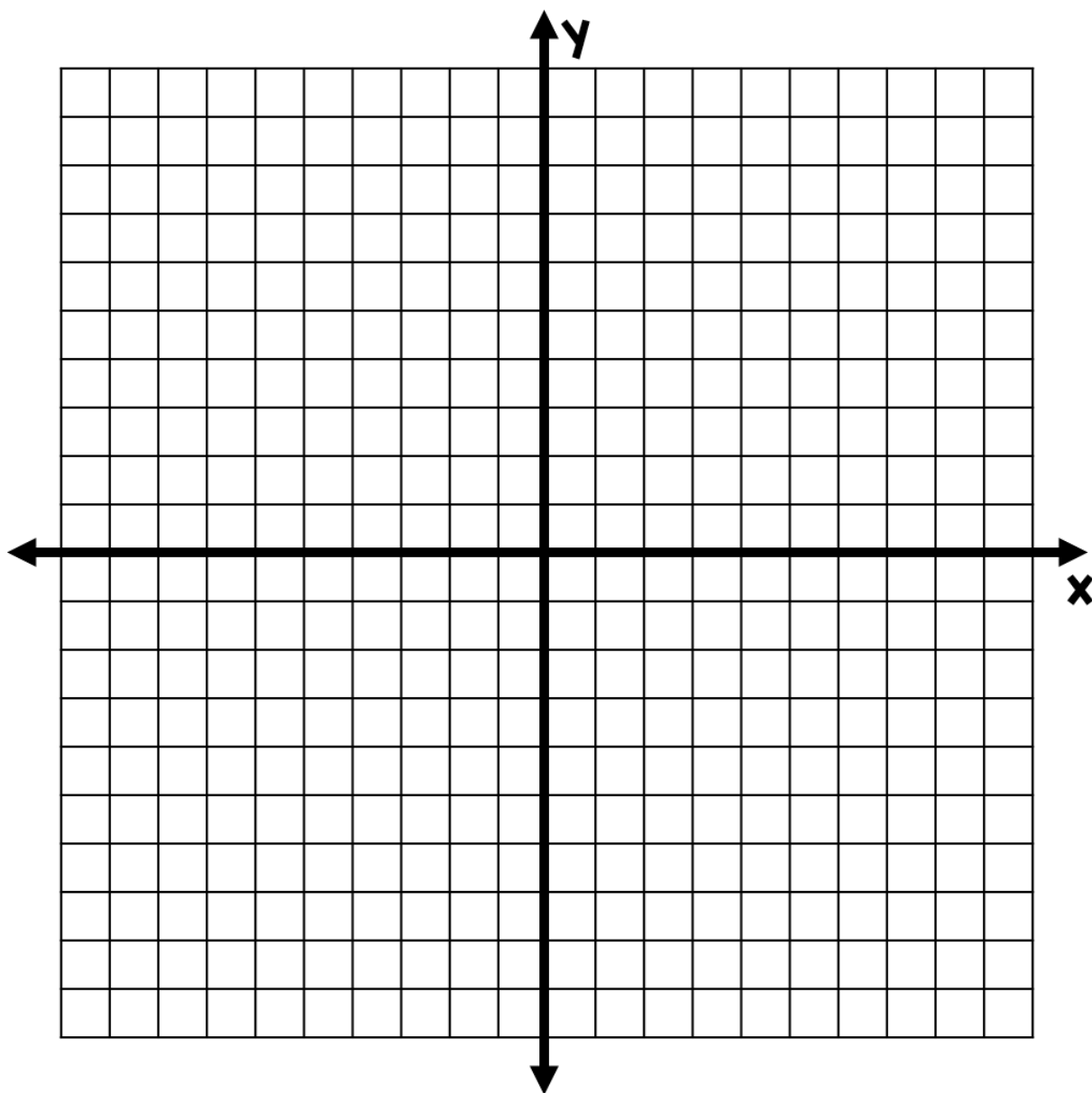
FRUIT	RATIO
strawberries to blueberries	
strawberries to pineapple	
pineapple to mango	
mango to banana	
banana to blueberries	
mango to blueberries	
pineapple to berries	
mango to the smoothie	
pineapple to the smoothie	
berries to the smoothie	
berries to non-berries	
smoothie to blueberries	
smoothie to mango	

# THE COORDINATE PLANE

Plot each point on the coordinate plane and name the quadrant the point is in.

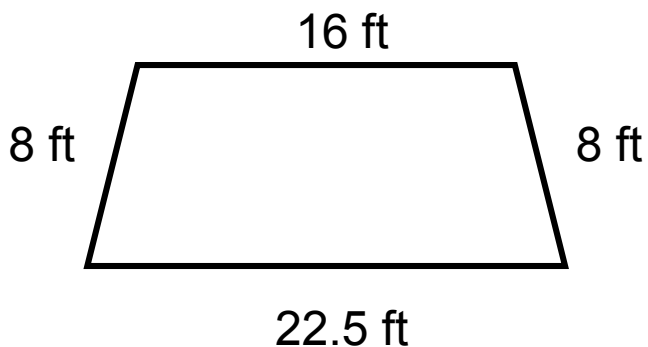
POINT	QUADRANT
A(3, 4)	
B(5, -7)	
C(0, -5)	
D(-9, 2)	

POINT	QUADRANT
E(-1, -2)	
F(-8, 0)	
G(10, 3)	
H(-4, 8)	



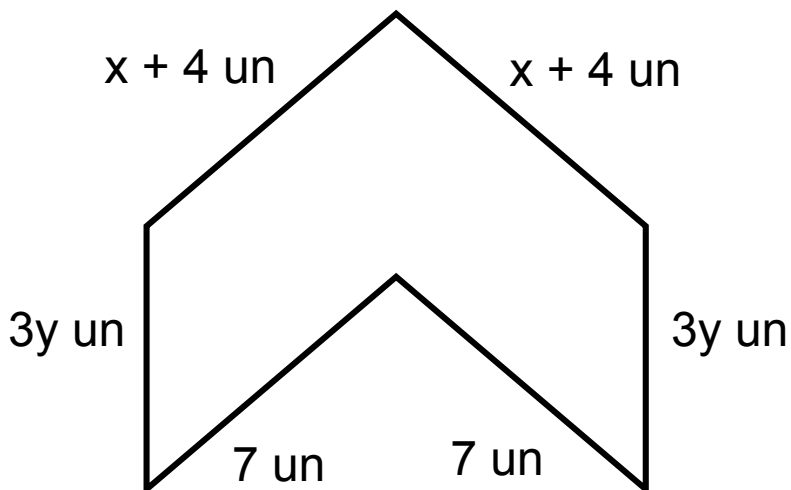
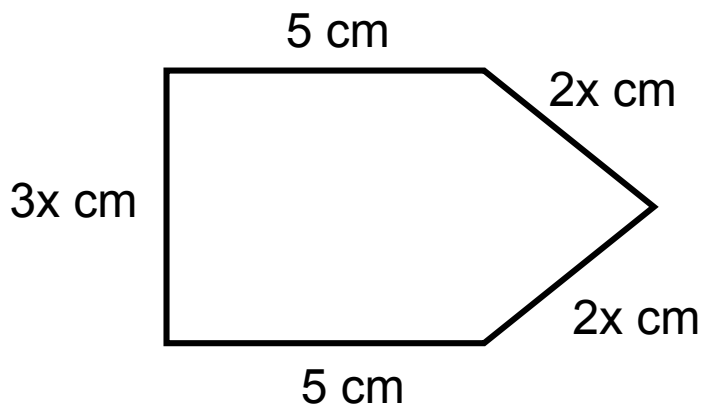
# CALCULATING PERIMETER

Determine the perimeter of each figure.



$P =$

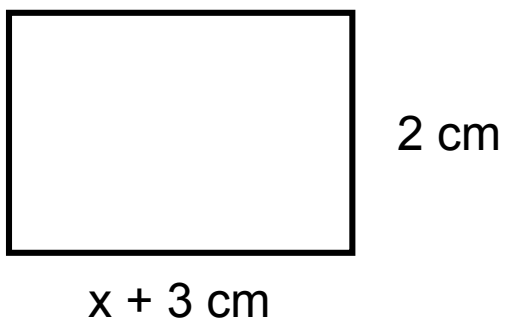
$P =$



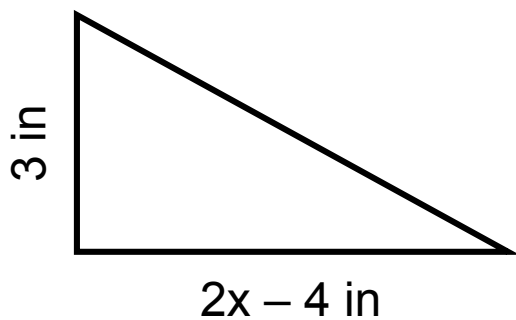
$P =$

# CALCULATING AREA

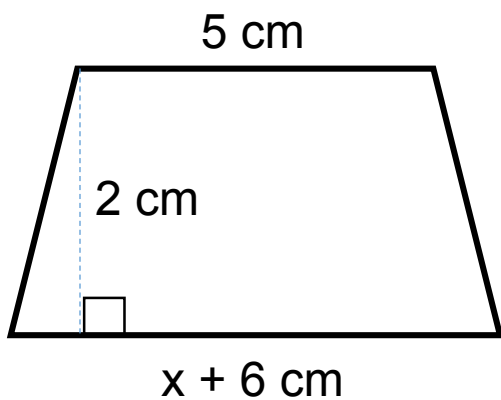
Determine the area of each figure.



A =



A =



A =