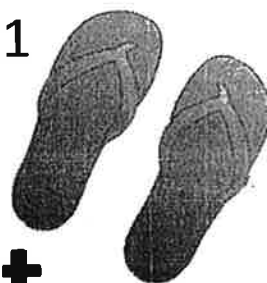
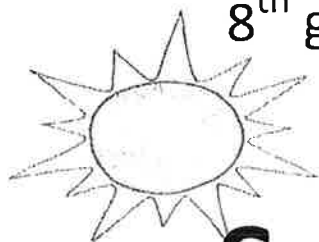


# *Are you ready for Algebra 1?*

Review prerequisite skills for

8<sup>th</sup> grade Common Core Algebra 1



## **Summer Packet**

- First test of the year will be on the concepts contained in this packet.

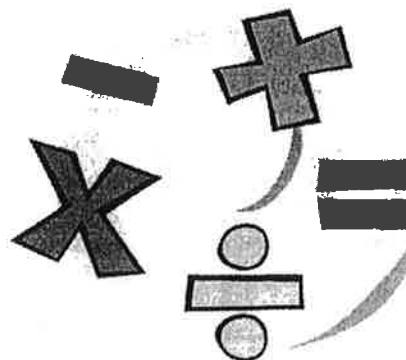
We look forward to working with you next year!!!



Mrs. Caliendo

Mr. Froelich

Mrs. Tribble



1.

Find the value of  $a^2 - b$  if  $a = 3$  and  $b = -5$ .

1. 14      3. 2  
2. 4      4. 11

-----

2.

What is the value of the expression  $2x^2 - 5x + 6$  when  $x = -2$ ?

1. 32      3. 24  
2. -24      4. 4

-----

3.

Find the value of  $5xy^2$  if  $x = -2$  and  $y = -3$ .

1. -90  
2. 90  
3. -60  
4. 60

-----

4.

If  $x = -2$  and  $y = 4$ , find the numerical value of the expression  $7y - 3x$ .

1. 22      3. -26  
2. 2      4. 34

-----

5.

If  $p = 2ak^2$ , find  $p$  when  $a = -1$  and  $k = 3$ .

1. -18      3. -6  
2. 18      4. 6

-----

6.

If  $a = -2$  and  $b = 3$ , what is the value of  $-3a^2b$ ?

1. -36      3. -54  
2. 36      4. 54

-----

7.

The formula  $C = \frac{5}{9}(F - 32)$  can be used to find the Celsius temperature ( $C$ ) for a given Fahrenheit temperature ( $F$ ). What Celsius temperature is equal to a Fahrenheit temperature of  $77^\circ$ ?

1.  $8^\circ$       3.  $45^\circ$   
2.  $25^\circ$       4.  $171^\circ$

-----

8.

Find the sum of  $\frac{1}{6}$  and  $\frac{3}{8}$ . Write your answer in simplest form.

Answer:

-----

9.

Find the sum of  $\frac{2}{3}$  and  $\frac{4}{5}$ . Write your answer in simplest form.

Answer:

-----

10.

Al wanted to put a railing next to his stairs. The railing needs to be  $18\frac{1}{3}$  feet long. If he has 2 pieces of wood that are each  $7\frac{1}{2}$  feet long, how much longer must the third piece be? Write your answer in simplest form.

Answer:   
 feet

-----

11.

Multiply  $2\frac{3}{4} \times 3\frac{1}{3}$ . Express your answer in simplest form.

Answer:   $\frac{\text{}{\text{$

12.

Solve for  $x$ .  $x = \frac{18}{5} \times \frac{14}{4}$ . Express your answer in simplest form.

Answer:  $x = \text{}$   $\frac{\text{}}{\text{$

13.

Find the reciprocal of  $\frac{2}{3}$ .

Answer:  $\frac{\text{}}{\text{$

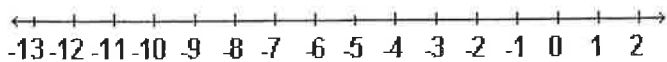
14.

Find the reciprocal of  $\frac{4}{5}$ .

Answer:  $\frac{\text{}}{\text{$

15.

What is the value of  $-5 + -8$ ?



Answer:

16.

Add:  $-5 + (-7) + (+6)$ .

Answer:

17.

Find  $|-8 + 6|$ .

Answer:

18.

Find  $|-4 - (-10)|$

Answer:

19.

Find  $(-3)(5)$ .

Answer:

20.

Find the quotient  $-36 \div (-12)$ .

Answer:

21.

Find  $6 \overline{) -120}$ .

Answer:

22.

The amount of time,  $t$ , in seconds, it takes an object to fall a distance,  $d$ , in meters, is expressed by the formula  $t = \sqrt{\frac{d}{4.9}}$ .

Approximately how long will it take an object to fall 75 meters?

1. 0.26 sec      3. 3.9 sec
2. 2.34 sec     4. 7.7 sec

-----

23.

The expression  $\frac{(4x^3)^2}{2x}$  is equivalent to

1.  $4x^4$       3.  $8x^4$
2.  $4x^5$       4.  $8x^5$

-----

24.

What is the product of  $3x^4 y^2$  and  $2xy^3$ ?

1.  $6x^5 y^5$
2.  $6x^4 y^5$
3.  $6x^4 y^6$
4.  $6x^5 y^6$

-----

25.

The product of  $(-3xy^2)(5x^2 y^3)$  is

1.  $-8x^3 y^5$
2.  $-15x^3 y^5$
3.  $-15x^2 y^5$
4.  $-15x^3 y^6$

-----

26.

The expression  $3^2 \cdot 3^3 \cdot 3^4$  is equivalent to

1. 279      3. 39
2. 2724     4. 324

-----

27.

 $6\frac{1}{3}$  $1\frac{7}{12}$ 

Find the area of this rectangle. Reduce your answer to lowest terms.

$$\boxed{\phantom{00}} \div \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}} \text{ square units}$$

-----

28.



Brooke uses  $1\frac{1}{4}$  gallons of gas to

drive one way to work. If she drove back and forth between home and work 10 times this week, how much gas did she use? Reduce your answer to lowest terms

$$\boxed{\phantom{00}} \div \frac{\boxed{\phantom{00}}}{\boxed{\phantom{00}}} \text{ gallons of gas}$$

-----

29.

A 40% discount is the same as paying:

1. 60% of the original price
2.  $\frac{2}{5}$  of the original price
3. 140% of the original price
4. 40% of the original price

-----

30.

Solve for  $x$ :  $3.2x - 7.4 = -7.8x + 3.6$

- 1. 1            3. 3.8
- 2. 0.8        4. 0.5

-----

31.

Wyatt is trying to put fencing around the play area in the back yard. He has purchased four sections of fencing that each measure  $22\frac{1}{2}$  feet long. He needs two sections that measure  $19\frac{3}{4}$  feet for the length and two sections that measure  $15\frac{3}{4}$  feet each for the width. How much fence will he have left after he installs the fencing around the play area?

- 1. 90 feet
- 2.  $39\frac{1}{2}$  feet
- 3.  $22\frac{1}{2}$  feet
- 4. 19 feet

-----

32.

Identify the scale factor:

	Stuffed Animal	Alligator at the zoo
Length (ft.)	2	8

- 1. 1:8        3. 1:3
- 2. 1:2        4. 1:4

-----

33.

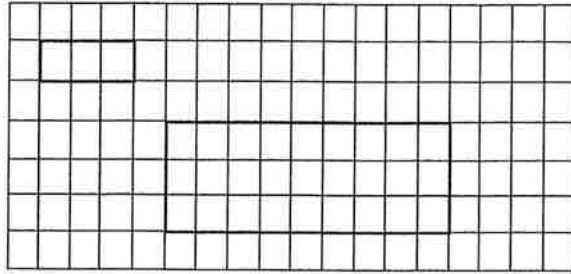
The scale on a road map is  $1\text{ cm} = 250\text{ miles}$ . If the distance between two cities on the map is  $6.5\text{ cm}$ , what is the actual distance between the cities?

- 1. 1,250 miles    3. 250 miles
- 2. 38.46 miles    4. 1,625 miles

-----

34.

What is the scale factor that was used to draw the larger figure?

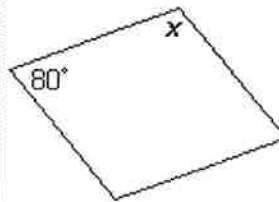


- 1.  $\frac{1}{10}$
- 2.  $\frac{1}{9}$
- 3.  $\frac{3}{1}$
- 4.  $\frac{4}{1}$

-----

35.

Given the following parallelogram; find the value of  $x$ .

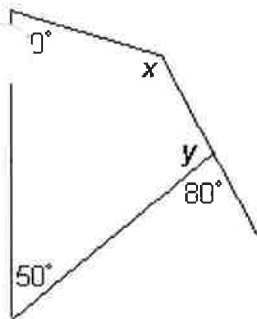


Answer:  $x =$   degrees

-----

36.

Given the following figure; find the value of  $x$ .



Answer:  $x =$   degrees

-----

37.

The multiplicative inverse of  $\frac{2}{3}$  is what number?

1. 1
  2.  $-\frac{3}{2}$
  3.  $\frac{3}{2}$
  4.  $-\frac{2}{3}$
- 

38.

What is the multiplicative inverse of -2?

1. 1
  2. 2
  3.  $-\frac{1}{2}$
  4.  $\frac{1}{2}$
- 

39.

The price to play a round of golf at Black Rock Country Club was \$102 last year. This year it costs \$117.30. What percent is the new price of last year's price?

Answer:  %

-----

40.

Last year, the price of a ticket to a Yankees game was \$39.25. This year, the price is 109% of last year's price. How much is a ticket now, to the *nearest cent*?

Answer: \$

-----

41.

9 is what percent of 4?

- |           |            |
|-----------|------------|
| 1. 0.225% | 3. 225%    |
| 2. 2.25%  | 4. 0.0225% |
- 

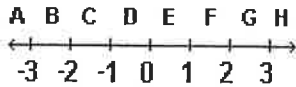
42.

150% of 350 is

- |          |         |
|----------|---------|
| 1. 0.525 | 3. 52.5 |
| 2. 5.25  | 4. 525  |
-

43.

Several locations are marked with letters on the number line below.



Next to each number below, fill in the letter that is closest to its location on the number line.

$\frac{\sqrt{4}}{3}$  is near letter

$-\sqrt{\frac{1}{4}}$  is near letter

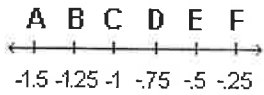
$-\frac{7}{3}$  is near letter

1.111 is near letter

-----

44.

$\frac{-78}{67}$  is located between what two letters on the number line?



1. A and B
2. B and C
3. C and D
4. D and E

-----

45.

If the power of an atomic bomb is approximately  $9.89 \times 10^{21}$  megatons, and the makers of the bomb were able to increase its force 1,000 times, what is the power of the new bomb?

1.  $9.89 \times 10^{23}$  megatons
2.  $9.89 \times 10^{25}$  megatons
3.  $9.89 \times 10^{24}$  megatons
4.  $9.89 \times 10^{18}$  megatons

-----

46.

What is the absolute value distance from the numbers 3 to -105?

1. -102
2. -108
3. 102
4. 108

-----

47.

Determine the value of the following expression.

$|3(-2 - 3) - 4| = \text{}$

-----

48.

What is the solution of the equation  $3y - 5y + 10 = 36$ ?

1. -13
2. 2
3. 4.5
4. 13

-----

49.

Solve for x:  $15x - 3(3x + 4) = 6$

1. 1
2.  $-\frac{1}{2}$
3. 3
4.  $\frac{1}{3}$

-----

50.

Which equation is an illustration of the additive identity property?

1.  $x \times 1 = x$
2.  $x + 0 = x$
3.  $x - x = 0$
4.  $x \cdot 1/x = 1$

-----



51.

If  $12x = 4(x + 5)$ , then  $x$  equals

1.  $1/12$       3. 1.25  
 2.  $5/8$         4. 2.5

-----

52.

Which sentence illustrates the commutative property for addition?

1.  $(a + b) + c = a + (b + c)$   
 2.  $a(b + c) = ab + ac$   
 3.  $a + 0 = a$   
 4.  $a + b = b + a$

-----

53.

What is the additive inverse of  $-4a$ ?

1.  $\frac{a}{4}$   
 2.  $4a$   
 3.  $-\frac{a}{4}$   
 4.  $-\frac{1}{4a}$

-----

54.

Which sentence illustrates the distributive property?

1.  $xy = yx$   
 2.  $x(yz) = (xy)z$   
 3.  $x(y + z) = xy + xz$   
 4.  $1(xy) = xy$

-----

55.

Mary and Janet were at a restaurant where they thought the service was excellent. They wanted to leave a 20% tip for the server. If the check was \$46.60, about how much should they have to leave to cover both the check and the tip? Round your answer to the nearest dollar.

1. \$53.00  
 2. \$55.00  
 3. \$56.00  
 4. not enough information given

-----

56.

Stan and Alice went out to dinner and their bill came to \$63.80. If they wanted to leave a 15% tip, estimate the total amount they will put on their credit card. Round your answer to the nearest half-dollar.

Answer: \$

-----

57.

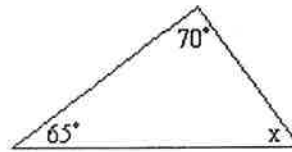
Jan and Joe filled their summer pool 50% of the way full. If there was 500 gallons of water in the pool, what is the capacity of the pool?

1. 1000 gallons      3. 250 gallons  
 2. 500 gallons      4. 150 gallons

-----

58.

Find the missing angle measure in the triangle.

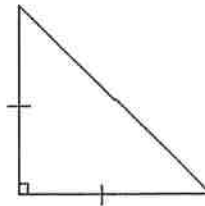


Answer:  $x =$    $^\circ$

-----

59.

What is true about this triangle?

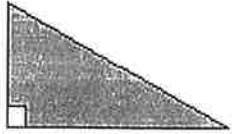


1. It is a right scalene triangle.  
 2. It is an acute isosceles triangle.  
 3. It is an isosceles right triangle.  
 4. It is a right equilateral triangle.

-----

60.

Classify the triangle by its sides and angles:



1. A right scalene triangle
  2. An isosceles triangle
  3. An acute equilateral triangle
  4. An obtuse scalene triangle
- 

61.

Use algebra to solve for  $v$ :  $2.3v = 13.8$ .

1. 4.5      3. 5.5
  2. 5        4. 6
- 

62.

Use one transformation to solve the equation:  $\frac{1}{2}r = 24$ .Answer:  $r =$  

63.

Find the solution to  $-x + 7 = -8$ .Answer:  $x =$  

64.

Find the four coordinates to graph the line  $y = 0.5x + 1$  by filling the table.

$x$	$y$
<input type="text"/>	1
2	<input type="text"/>
-2	<input type="text"/>
4	<input type="text"/>

-----

65.

Fill in the table for the graph of the equation:

$$y = \frac{2}{3}x - 1$$

$x$	$y$
0	<input type="text"/>
3	<input type="text"/>
6	<input type="text"/>
-3	<input type="text"/>

-----

66.

Solve for  $m$ :  $6 + 3m = 24$ .Answer:  $m =$  

-----

67.

Find the solution to  $50 = 2x + 12$ .Answer:  $x =$  

-----

68.

Complete the sentence:  $5(12 - 9) = 5(\text{}) - 5(9)$ 

-----

69.

Which of the following is an irrational number?

1. 5.5
2. -5
3.  $\sqrt{5}$
4.  $\frac{1}{5}$

-----

70.

The median is the middle value when numerical items are put in

order. Which is the median of  $\frac{7}{9}$ , 62%, 0.42, 70%,  $1\frac{1}{2}$ ?

1.  $\frac{7}{9}$
2. 62%
3. 0.42
4. 70%
5.  $1\frac{1}{2}$

-----

71.

Which list shows the numbers in order from *least* to *greatest*?

1.  $0.\bar{3}$ ,  $\frac{2}{10}$ , 45%,  $\frac{1}{6}$ , 0.28
2.  $\frac{2}{10}$ ,  $\frac{1}{6}$ , 0.28,  $0.\bar{3}$ , 45%
3. 45%,  $0.\bar{3}$ , 0.28,  $\frac{1}{6}$ ,  $\frac{2}{10}$
4.  $\frac{1}{6}$ ,  $\frac{2}{10}$ , 0.28,  $0.\bar{3}$ , 45%

-----

72.

Which of the following is an integer?

1. 2.2
2. -2
3.  $\sqrt{2}$
4.  $\frac{1}{2}$

-----

73.

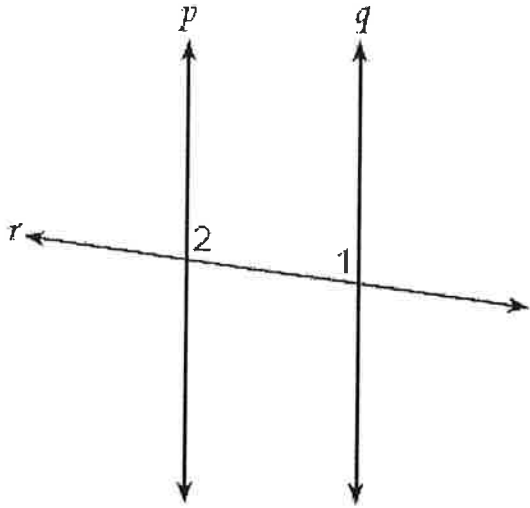
24 out of the 40 employees at Joe's Coffee Shop drink coffee every day. What percent of the employees who do *not* drink coffee everyday?

- |        |        |
|--------|--------|
| 1. 60% | 3. 43% |
| 2. 40% | 4. 68% |

-----

74.

Lines  $p$  and  $q$  are intersected by line  $r$ , as shown below.



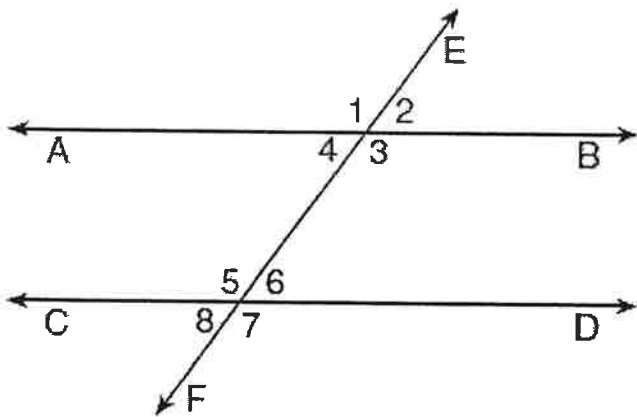
If  $m\angle 1 = 7x - 36$  and  $m\angle 2 = 5x + 12$ , for which value of  $x$  would  $p \parallel q$ ?

- 1. 17      3. 83
- 2. 24      4. 97

-----

75.

Transversal  $\overleftrightarrow{EF}$  intersects  $\overleftrightarrow{AB}$  and  $\overleftrightarrow{CD}$ , as shown in the diagram below.



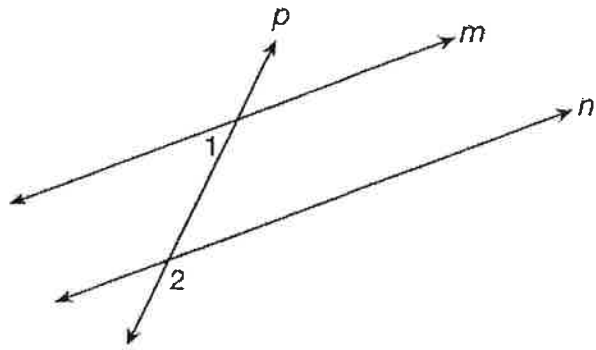
Which statement could always be used to prove  $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$ ?

- 1.  $\angle 2 \cong \angle 4$
- 2.  $\angle 7 \cong \angle 8$
- 3.  $\angle 3$  and  $\angle 6$  are supplementary
- 4.  $\angle 1$  and  $\angle 5$  are supplementary

-----

76.

As shown in the diagram below, lines  $m$  and  $n$  are cut by transversal  $p$ .



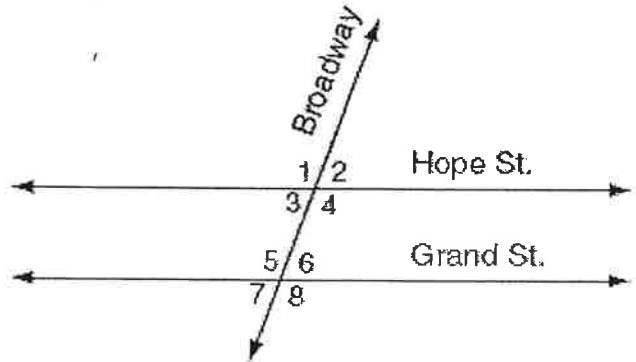
If  $m\angle 1 = 4x + 14$  and  $m\angle 2 = 8x + 10$ , lines  $m$  and  $n$  are parallel when  $x$  equals

- 1. 1      3. 13
- 2. 6      4. 17

-----

77.

The accompanying diagram shows two parallel roads, Hope Street and Grand Street, crossed by a transversal road, Broadway.



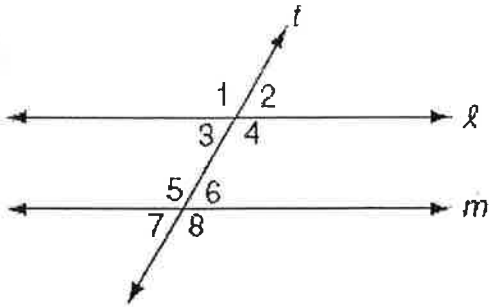
If  $m\angle 1 = 110$ , what is the measure of  $\angle 7$ ?

- 1.  $40^\circ$       3.  $110^\circ$
- 2.  $70^\circ$       4.  $180^\circ$

-----

78.

In the accompanying diagram, line  $\ell$  is parallel to line  $m$ , and line  $t$  is a transversal.



Which must be a true statement?

1.  $m\angle 1 + m\angle 4 = 180$
2.  $m\angle 1 + m\angle 8 = 180$
3.  $m\angle 3 + m\angle 6 = 180$
4.  $m\angle 2 + m\angle 5 = 180$

-----

79.

In the accompanying diagram, line  $a$  intersects line  $b$ .



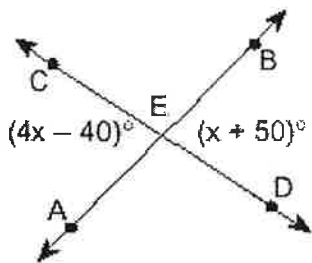
What is the value of  $x$ ?

1. -10
2. 5
3. 10
4. 90

-----

80.

In the accompanying diagram,  $\overleftrightarrow{AB}$  and  $\overleftrightarrow{CD}$  intersect at  $E$ .



If  $m\angle AEC = 4x - 40$  and  $m\angle BED = x + 50$ , find the number of degrees in  $m\angle AEC$ .

$$m\angle AEC = \boxed{\phantom{000}}$$

-----

