

Middle School Algebra Summer Assignment



***Please show all work on the answer sheets provided in this packet.** Do not throw anything out! You will be entering your answers electronically and handing in the work to your algebra teacher when we return in September.

Due: Friday, September 15th, 2023

This will be graded and you will be tested on the material in this book

Name _____

Name _____

Algebra Summer Assignment #1

1.	2.	3.
p =	x =	x <
4.	5.	6.
x =	Choice ____	Choice ____
7.	8.	9.
Diameter _____ Circumference _____ Area _____	_____ sq. cm.	_____sq m
10.	11.	12.
Choice ____	m=	Choice ____

13.	14.	15.
x >	Choice ____	Choice ____
16.	17.	18.
Choice ____	Choice ____	Choice ____
19.	20.	21.
Choice ____	Choice ____	Choice ____
22.	23.	24.
Choice ____	Choice ____	Choice ____

Name _____

Algebra Summer Assignment #2

1.	2.	3.
Answer : ____ cans	Answer:	Answer: ____ ft
4.	5.	6.
Choice ____	Answer: ____ days	Answer: ____ sq ft
7.	8.	9.
Answer:	Answer: ____ cans	x =
10.	11.	12.
x =	t =	q =

13.	14.	15.
Choice ____	Choice ____	Choice ____
16.	17.	18.
Choice: ____	Choice ____	a =
19.	20.	
Choice ____	Choice ____	

1.	2.	3.
Choice: _____	Answer: ____%	Choice: _____
4.	5.	6.
Choice _____	Choice: ____	Answer: \$_____
7.	8.	9.
Choice: _____	Choice: _____	Choice: ____
10.	11.	12.
Choice: ____	Choice: ____	Choice: ____

13.	14.	15.
Choice: ____	Choice: ____	Choice ____
16.	17.	18.
Choice: ____	Choice ____	Choice: ____
19.	20.	
Choice ____	Choice: ____	

1.	2.	3.
Choice: _____	Choice: _____	Choice: _____
4.	5.	6.
Choice _____	Choice: _____	Choice: _____
7.	8.	9.
Choice: _____	Choice: _____	Choice: _____
10.	11.	12.
Choice: _____	Choice: _____	Choice: _____

13.	14.	15.
Choice: ____	Choice: ____	Choice ____
16.	17.	18.
Choice: ____	Choice ____	Choice: ____
19.	20.	
Choice ____	Choice: ____	

Name: _____

Assignment: Accelerated Algebra 2023 Summer Assignment #1

- 1 Find the solution to the equation $4\frac{1}{2}p + \frac{1}{2} = 7\frac{1}{4}$.
Express your answer in lowest terms.

Answer: $p =$

- 2 Simplify and solve: $12 - 2(x - 5) = 20$.

Answer: $x =$

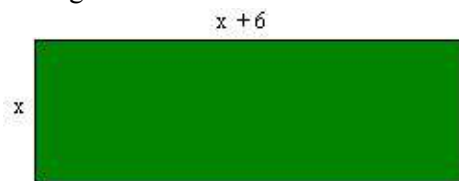
- 3 Simplify and solve the inequality: $-4(x + 2) > 44$.

Answer: $x <$

- 4 Find the solution to the equation: $\frac{1}{5}x - 9 = \frac{3}{4}$, expressing x as a mixed number in simplest form.

Answer: $x =$

- 5 Which expression represents the perimeter of this rectangle?



- 1 $2x + 6$
- 2 $4x + 12$
- 3 $4(x + 6)$
- 4 $4x$

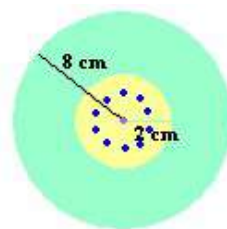
- 6 Kim has a living room that measures 12 feet by 12 feet. She wants to buy the largest circular area rug that she can find for the room. There are four rugs at a local department store. Which rug should she buy?

- 1 4 foot radius
- 2 6 foot radius
- 3 8 foot radius
- 4 10 foot radius

- 7 Fill in the table below with data for the circle. Use a calculator and round all answers to the *nearest whole number*.

Radius	6.5
Diameter	
Circumference	
Area	

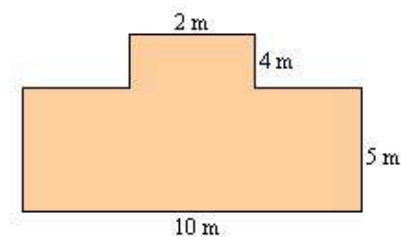
- 8 Ellen is making a small round birthday cake for her niece. If she wants to put a circular picture of her favorite character in the middle, how much of the top of the cake will be left for icing?



Use a calculator and round your answer to the *nearest tenth* of a square centimeter.

Answer: square centimeters

- 9 Find the area of this irregular figure.



Answer: square meters

- 10 $\{-2\}$ is the solution set to which of the following?

- 1 $-2x + 6 = 10$
- 2 $2x + 6 = 10$
- 3 $4x + 12 = 20$
- 4 $6x + 9 = 6$

11 Find the solution to $5 + \frac{m}{7} = 10$.

Answer: $m =$

- 12 Max is saving \$10 a month for a summer vacation. If he also has \$50 from his grandmother, how many months will Max need to save to have a total of \$200? Choose the equation that represents this situation.

- 1 $50m + 10 = 200$
- 2 $50m - 10 = 200$
- 3 $10m - 50 = 200$
- 4 $10m + 50 = 200$

13 Find the solution to $-12 > -2x$.

Answer: $x >$

- 14 The local weather station reported that your town received 5 inches of snow in 3 hours where the snow fell at the same rate for all 3 hours. In what other town was the rate of snow fall the same?

- 1 Town A: received 10 inches of snow in 6 hours where the snow fell at the same rate for all 6 hours
- 2 Town B: received 4 inches of snow in 2 hours where the snow fell at the same rate for all 2 hours
- 3 Town C: received 0.5 inches of snow in 1 hour where the snow fell at the same rate for the one hour
- 4 Town D: received 7.5 inches of snow in 5.5 hours where the snow fell at the same rate for all 5.5 hours

15 Which value of x is the solution of the equation $\frac{2}{3}x + \frac{1}{2} =$

$\frac{5}{6}$?

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

16 What is the value of x in the equation $2(x - 4) = 4(2x + 1)$?

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

- 17 Jeremy surveyed students at his school for a math project. When he analyzed the results, 38 people, or 18% of those surveyed, selected hamburgers as their favorite food. How many people did Jeremy survey for his math project? (Round your answer to the nearest whole number, if necessary.)

- 1 212
- 2 210
- 3 684
- 4 211

- 18 What is the correct verbal statement for the given algebraic equation, $3x - 6 = -2$?

- 1 Three times a number decreased by -6 is -2 .
- 2 Three times a number decreased by 6 is -2 .
- 3 Twice a number increased by 3 is 4.
- 4 A number cubed decreased by 6 is -2 .

- 19 Which equation would best model this situation?

Al bought a sound system that cost a total of \$650.00, and he also bought some CD's at \$9.99 each. The total that Al spent was \$719.93. How many CD's did Al buy? [Ignore sales tax.]

- 1 $650.00 + 9.99n = 719.93$
- 2 $650.00 - 9.99n = 719.93$
- 3 $650.00 \times 9.99n = 719.93$
- 4 $650.00 \div 9.99n = 719.93$

20 What is the y -intercept of the graph of the equation $y = -\frac{2}{3}x + 4$?

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

21 The table below could be used to graph which equation?

x	y
0	2
1	1
-1	3
2	0

1 $y = -x + 2$

2 $y = x + 2$

3 $y = -x - 2$

4 $y = x - 2$

22 What is the slope of the graph of the line $6x - 2y = 15$?

1 -7.5

2 -3

3 2.5

4 3

23 Which equation is equivalent to $3x + 4y = 15$?

1 $y = \frac{15 - 3x}{4}$

2 $y = \frac{3x - 15}{4}$

3 $y = 15 - 3x$

4 $y = 3x - 15$

24 The line $3x - 2y = 12$ has

1 a slope of $\frac{3}{2}$ and a y -intercept of -6

2 a slope of $-\frac{3}{2}$ and a y -intercept of 6

3 a slope of 3 and a y -intercept of -2

4 a slope of -3 and a y -intercept of -6

Name: _____

Assignment: Accelerated Algebra 2023 Summer Assignment #2

- 1 Steve has 5 cans of soda. If he gives $3\frac{1}{2}$ of them away, how many cans of soda does he have left? Write your answer in simplest form.

Answer:

- 2 Evaluate $A + B + C$ if $A = \frac{2}{3}$, $B = \frac{1}{4}$, and $C = \frac{5}{12}$. Write your answer in simplest form.

Answer:

- 3 Al wants 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 long must the third piece be? Write your answer in simplest form.

Answer: feet

- 4 Which list orders the following set of fractions from *least to greatest*?

$\frac{5}{12}, \frac{4}{6}, \frac{1}{2}, \frac{3}{24}$

1 $\frac{4}{6}, \frac{1}{2}, \frac{5}{12}, \frac{3}{24}$

2 $\frac{3}{24}, \frac{5}{12}, \frac{1}{2}, \frac{4}{6}$

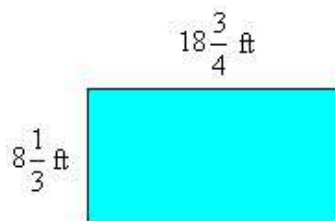
3 $\frac{5}{12}, \frac{1}{2}, \frac{3}{24}, \frac{4}{6}$

4 $\frac{4}{6}, \frac{1}{2}, \frac{3}{24}, \frac{5}{12}$

- 5 Jim spends $3\frac{1}{2}$ days a month away from home. If he does this for $6\frac{1}{2}$ months. How many days would Jim be away from home? Express your answer in simplest form.

Answer: days

- 6 The area of a rectangle is its length $\times$ width. Sajad's swimming pool is in the shape of a rectangle. The length of pool is $18\frac{3}{4}$ feet. The width is $8\frac{1}{3}$ feet.



What is the area of Sajad's swimming pool?

Answer: square feet

- 7 Solve: $2\frac{2}{3} \div \frac{5}{6}$. Express your answer in simplest form.

Answer:

- 8 Sid has $6\frac{2}{3}$ cans of soda left. He wants to pour the contents evenly into each of 4 cups. How much soda will be in each cup?

Answer: cans

9 Find x :

$$-4x - 8 = -16$$

$$x = \boxed{}$$

10 Solve this equation for x : $\frac{x}{4.5} + 2.8 = 7.9$.

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

11 Simplify and solve $5t - 2 - t = 14$.

$$\text{Answer: } t = \boxed{}$$

12 Find q : $16 - 2q = q + 7$.

$$\text{Answer: } q = \boxed{}$$

13 Solve for x : $6(x - 2) - 4x = 16$

- 1 2
- 2 7
- 3 12
- 4 14

14 Solve for x : $4(2x - 1) = 2x + 35$

- 1 3.9
- 2 6.5
- 3 6
- 4 39

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

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

16 At the beginning of her mathematics class, Mrs. Reno gives a warm-up problem. She says, "I am thinking of a number such that 6 less than the product of 7 and this number is 85." Which number is she thinking of?

- 1 $11\frac{2}{7}$
- 2 13
- 3 84
- 4 637

17 If $-2x + 3 = 7$ and $3x + 1 = 5 + y$, the value of y is

- 1 1
- 2 0
- 3 -10
- 4 10

18 Simplify and solve for a : $-3(a - 2) + 1 = 28$.

$$\text{Answer: } a = \boxed{}$$

19 Which phrase does *not* represent $12 + n$?

- 1 The sum of 12 and a number.
- 2 The total of 12 and a number.
- 3 $12 + a$ number.
- 4 The product of 12 and a number.

20 Kylie and Rhoda are solving the equation $4(x - 8) = 7(x - 4)$.

- Kylie uses a first step that results in $4x - 32 = 7x - 28$.
- Rhoda uses a first step that results in $4x - 8 = 7x - 4$.

Which statement about the first steps Kylie and Rhoda use is true?

- 1 Kylie uses the associative property, resulting in a correct first step.
- 2 Kylie uses the distributive property, resulting in a correct first step.
- 3 Rhoda uses the associative property, resulting in a correct first step.
- 4 Rhoda uses the distributive property, resulting in a correct first step.

Name: _____

Assignment: Accelerated Algebra 2023 Summer Assignment #3

- 1 Linda paid \$48 for a jacket that was on sale for 25% of the original price. What was the original price of the jacket?

- 1 \$60
- 2 \$72
- 3 \$96
- 4 \$192

- 2 A 14-gram serving of mayonnaise contains 11 grams of fat. What percent of the mayonnaise, to the *nearest tenth of a percent*, is fat?

Answer: %

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

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

- 4 Solve for x : $\frac{x}{4} + 7 = 5$

- 1 8
- 2 -8
- 3 3
- 4 $-\frac{1}{2}$

- 5 Solve for x : $\frac{3x}{4} - 1 = 2$

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

- 6 Sue bought a picnic table on sale for 50% off the original price. The store charged her 10% tax and her final cost was \$22.00. What was the original price of the picnic table?

Answer: \$

- 7 $\frac{1}{10}$ % is equivalent to all of the following *except*

- 1 0.1%
- 2 0.001
- 3 $\frac{1}{100}$
- 4 $\frac{1}{1000}$

- 8 Expressed as a fraction, the sum of $\frac{4y}{5}$ and $\frac{3y}{4}$ is equivalent to

- 1 $\frac{31y}{20}$
- 2 $\frac{7y}{9}$
- 3 $\frac{7y}{20}$
- 4 $\frac{31y}{9}$

- 9 The product of $2x^3$ and $6x^5$ is

- 1 $10x^8$
- 2 $12x^8$
- 3 $10x^{15}$
- 4 $12x^{15}$

- 10 Which expression has the same value as $5(4x + 4)$?

- 1 $20x + 20$
- 2 $9x + 20$
- 3 $40x$
- 4 $13x$

- 11 Which expression is equivalent to $4(p + 2k) + k$

- 1 $8p + k$
- 2 $4p + 3k$
- 3 $4p + 9k$
- 4 $p + 3k$

- 12 Stefano purchased a truck for $\frac{5}{6}$ of the sticker price of \$35,670. He had to pay 7.25% sales tax. What was the amount of Stefano's bill?

- 1 \$42,804.00
- 2 \$32,311.08
- 3 \$31,880.06
- 4 \$29,725.00

- 13 Your family purchased new living room furniture on credit at the store, which is a simple interest loan. If your family paid \$300.00 in interest on the principal of \$1,000.00 over 5 years, what was the rate of the loan?

- 1 6%
- 2 8%
- 3 4%
- 4 2%

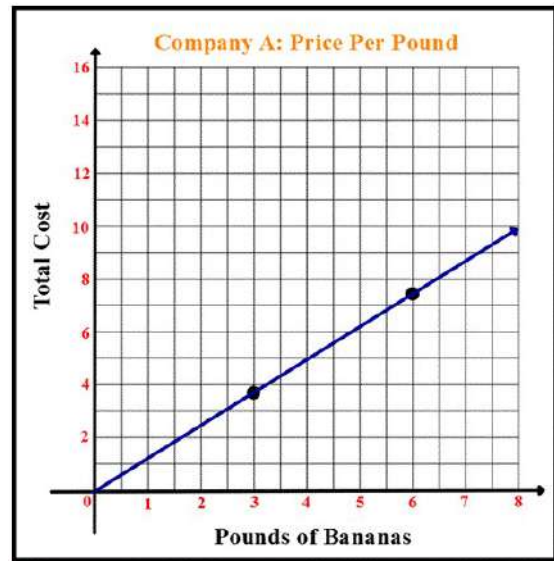
- 14 Dennis bought a book for \$12.95, and his total bill was \$13.92. What was the sales tax rate that was applied to his purchase?

- 1 9.5%
- 2 7.5%
- 3 9.7%
- 4 6%

- 15 Simplify the expression: $8xy - (x + 2xy) + 3x$

- 1 $-6xy + 3x$
- 2 $6xy + 3x$
- 3 $6xy + 2x$
- 4 $6xy + 2y$

16



The graph above represents the cost of bananas compared to the weight of the bananas for Company A. Company B uses the equation $c = 1.5w$ to figure out the cost, c , for a certain weight, w , in pounds of bananas. Select the statement that is true.

- 1 The unit rate for Company A is greater than the unit rate for Company B.
- 2 Two pounds of bananas would cost the same at Company A and Company B.
- 3 Eight pounds of bananas costs no more than \$10 at Company A and Company B.
- 4 Ten pounds of bananas costs more at Company B than at Company A.

17

A recipe for a dozen cookies calls for $\frac{3}{4}$ c. chocolate

chips, $\frac{1}{2}$ c. sugar, $1\frac{1}{2}$ c. flour, and 2 eggs. If Kathy wants to make 4 dozen cookies, which should she use?

- 1 3 c. chocolate chips, 2 c. sugar, 6 c. flour, 8 eggs
- 2 6 c. chocolate chips, 1 c. sugar, 3 c. flour, 4 eggs
- 3 $1\frac{1}{2}$ c. chocolate chips, 1 c. sugar, 3 c. flour, 4 eggs
- 4 9 c. chocolate chips, 6 c. sugar, 9 c. flour, 10 eggs

18 Phone company *A* sells 1200 minutes for \$132 per month and phone company *B* sells 2000 minutes for \$260 per month. Which company is cheaper and by how much per minute?

- 1 Company *A* by 3 cents per minute
- 2 Company *B* by 5 cents per minute
- 3 Company *A* by 2 cents per minute
- 4 Company *B* by 4 cents per minute

19 Three times as many robins as cardinals visited a bird feeder. If a total of 20 robins and cardinals visited the feeder, how many were robins?

- 1 5
- 2 10
- 3 15
- 4 20

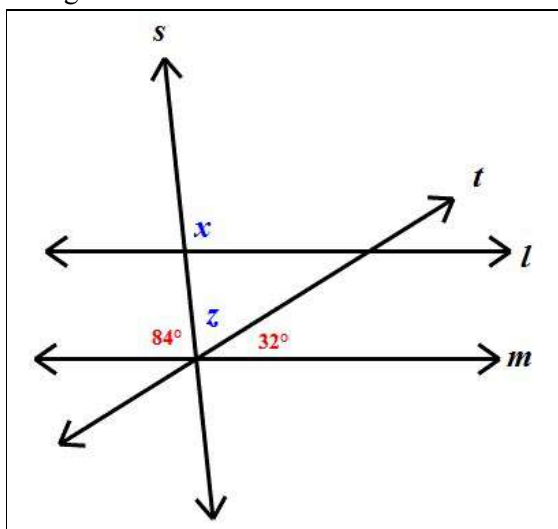
20 A total of \$450 is divided into equal shares. If Kate receives four shares, Kevin receives three shares, and Anna receives the remaining two shares, how much money did Kevin receive?

- 1 \$100
- 2 \$150
- 3 \$200
- 4 \$250

Name: _____

Assignment: Accelerated Algebra 2023 Summer Assignment #4

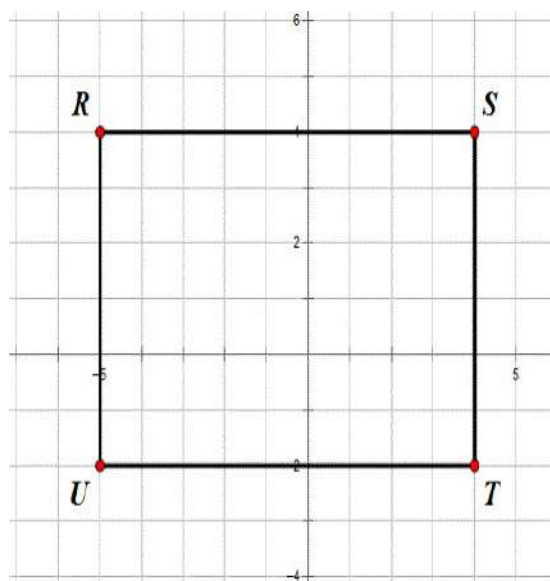
- 1 Parallel lines l and m are cut by transversals s and t to form the diagram below.



What is the value of x ?

- 1 58°
- 2 64°
- 3 96°
- 4 116°

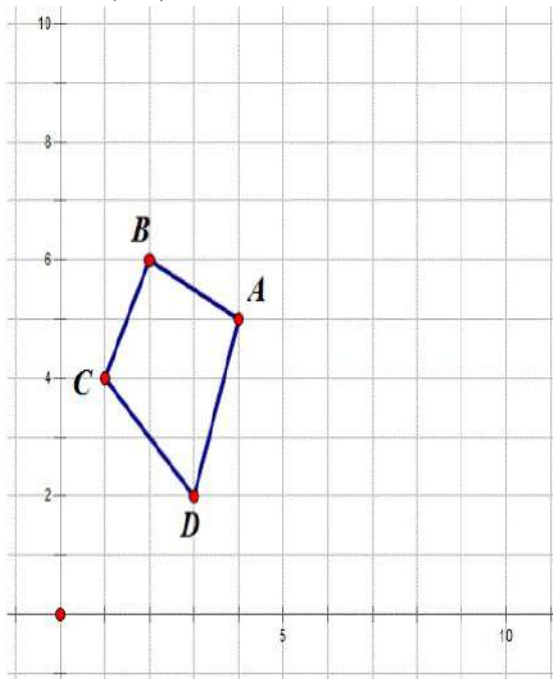
- 2 The rectangle below was dilated by a scale factor of $\frac{1}{3}$.



After the dilation, what is the perimeter of $R'S'T'U'$?

- 1 60 units
- 2 30 units
- 3 15 units
- 4 10 units

- 3 Quadrilateral $ABCD$ is translated so that the coordinates of B' are $(5, 8)$.



What are the coordinates of D' ?

- 1 $(4, 6)$
 - 2 $(6, 4)$
 - 3 $(7, 7)$
 - 4 $(8, 5)$
- 4 If $(7.6 \times 10^n)(3.5 \times 10^3) = 2.66 \times 10^9$, what is the value of n ?
- 1 6
 - 2 5
 - 3 3
 - 4 7
- 5 What are the coordinates of the image of point A $(2, -7)$ under the translation $(x, y) \rightarrow (x - 3, y + 5)$?

- 1 $(-1, -2)$
- 2 $(-1, 2)$
- 3 $(5, -12)$
- 4 $(5, 12)$

- 6 The vertices of $\triangle JKL$ have coordinates $J(5, 1)$, $K(-2, -3)$, and $L(-4, 1)$. Under which transformation is the image $\triangle J'K'L'$ not congruent to $\triangle JKL$?
- 1 a translation of two units to the right and two units down
 - 2 a counterclockwise rotation of 180 degrees around the origin
 - 3 a reflection over the x -axis
 - 4 a dilation with a scale factor of 2 and centered at the origin

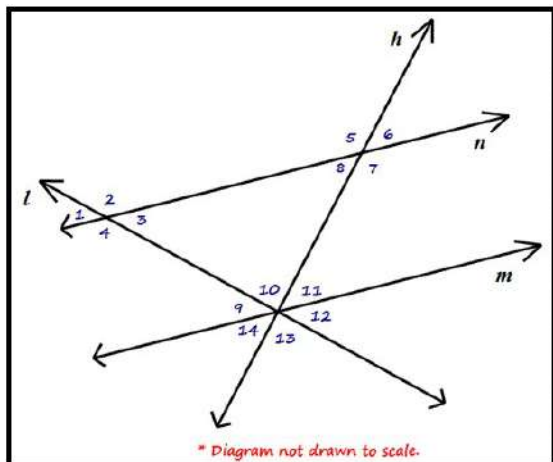
- 7 Which expression is equivalent to $(5^{-2}a^3b^{-4})^{-1}$?

- 1 $\frac{10b^4}{a^3}$
- 2 $\frac{25b^4}{a^3}$
- 3 $\frac{a^3}{25b^4}$
- 4 $\frac{a^2}{125b^5}$

Figure 1

In the diagram below:

- line n is parallel to line m
- $m\angle 5 = 132^\circ$
- $m\angle 9 = 43^\circ$
- lines h and l are transversals



Refer to Figure 1 and answer the following Question:

What is the measure of $\angle 11$?

- 1 48°
- 2 43°
- 3 137°
- 4 132°

9 Which equation is true?

- 1 $\frac{c^5}{d^7} \div \frac{d^3}{c} = \frac{c^4}{d^4}$
- 2 $(-2m^2p)^3 = -8m^6p^3$
- 3 $\left(\frac{s^3t^8}{s^4t^5}\right)^2 = \frac{t^5}{s^2}$
- 4 $(-2a^2b^3)(3ab^2) = a^3b^5$

10

Which expression is equivalent to $\frac{x^{-1}y^4}{3x^{-3}y^{-1}}$?

- 1 $\frac{x^4y^5}{3}$
- 2 $\frac{x^5y^4}{3}$
- 3 $3x^4y^5$
- 4 $\frac{y^4}{3x^5}$

11

A recent computer study showed that computer A processes up to 5.12×10^4 bits of data every second. Computer B processes up to 1.28×10^7 bits of data per second. How many times faster is computer B than computer A ?

- 1 6.40×10^2
- 2 2.50×10^2
- 3 4.00×10^{-3}
- 4 3.84×10^3

12

Which shows $(3^2)^{-2}$ in standard form?

- 1 1
- 2 -81
- 3 $\frac{1}{81}$
- 4 0

13

What is the value of $\left(\frac{3}{4}\right)^3$?

- 1 $\frac{9}{16}$
- 2 $\frac{3}{64}$
- 3 $\frac{9}{4}$
- 4 $\frac{27}{64}$

- 14 Simplify the expression $\frac{3x^{-4}y^5}{(2x^3y^{-7})^{-2}}$ using only positive exponents.

- 1 $\frac{y^9}{12x^2}$
- 2 $\frac{12x^2}{y^9}$
- 3 $\frac{3y^{12}}{2x}$
- 4 $\frac{2x}{3y^{12}}$

- 15 The expression $\frac{12w^9y^3}{-3w^3y^3}$ is equivalent to

- 1 $-4w^6$
- 2 $-4w^3y$
- 3 $9w^6$
- 4 $9w^3$

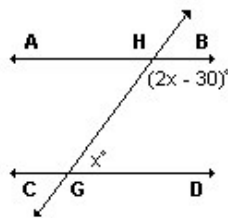
- 16 The distance to the Moon from Earth is 5.05×10^8 miles. The distance to the Pluto is 5.05×10^{16} miles. How many times the distance to the Moon is it to Pluto?

- 1 10^8
- 2 10,000,000
- 3 10^9
- 4 10^{-8}

- 17 How would you change 2.05×10^{-1} to 2.05×10 ?

- 1 Multiply by 1,000.
- 2 Divide by 1,000.
- 3 Divide by 100.
- 4 Multiply by 100.

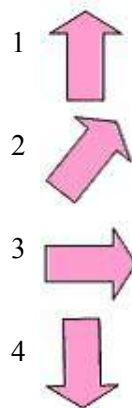
- 18 In the diagram, transversal $\overleftrightarrow{GH}$ intersects parallel lines $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$, $m\angle DGH = x$, and $m\angle BHG = 2x - 30$.



Find the value of x .

- 1 30
- 2 50
- 3 70
- 4 110

- 19 Which is a 180° rotation of the figure ?



- 20 Which expression is equivalent to $(3x^2)^{-1}$?

- 1 $\frac{1}{3x^2}$
- 2 $-3x^2$
- 3 $\frac{1}{9x^2}$
- 4 $-9x^2$