

MATHS

BOOKS - BETOPPERS

ALGEBRA

Formative Worksheet

1. The statement "five less than half of a number x" is equivalent to the expression

A.
$$\frac{x}{2} + 5$$

B.
$$\frac{x}{2}-5$$

$$\mathsf{C.}\,\frac{x}{5}-2$$

D.
$$\frac{x}{5} + 2$$



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2. The statement "four more than nine times of a number x" is equivalent to the expression

A.
$$9x - 4$$

B.
$$4x - 9$$

C.
$$9x + 4$$

D.
$$4x + 9$$



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3. In a basketball match, Jeff scored n points and Bill scored seven points less than Jeff. How many points did Bill score?

A.
$$n + 7$$

B.
$$n - 7$$

C.
$$n \times 7$$

D.
$$n \div 7$$



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4. The algebraic expression for the statement

"ten more than thrice a number x" is

A.
$$10x + 3$$

B.
$$3x + 10$$

C.
$$\frac{x}{10} + 3$$

D.
$$\frac{x}{3}+10$$



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5. Two friends Phil and Steve participated in a chocolate eating competition. Phil ate five chocolates less than thrice the number of

chocolates eatenj by Steve. If Steve ate C chocolates, then which of the following expressions is equivalent to the number of chocolates eaten by Phil?

A.
$$5C+3$$

B.
$$3C + 3$$

$$\mathsf{C.}\,5C-3$$

$$\mathsf{D}.\,3C-5$$

Answer:



6. What is the value of variable x in the equation 36+4x=48?

A. 2

B. 3

C. 4

D. 5

Answer:



7. What is the value of variable b in the equation 2b-11=15?

A. 5

B. 7

C. 13

D. 15

Answer:



8. If the perimeter, p of a rectangle with length I and width w is given by the equation p=2l+2w, then

A. p and l are constants, while 2 and w are variables

B. 2 and w are constants, while p and l are variables

C. $p,\ w$ and l are constants, while 2 is a variable

D. 2 is a constant, while $\emph{p,l}$, and \emph{w} are variables

Answer:



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9. The perimeter of a rectangle of length I and width w is given by the formula p=2(l+w)

The variables in the given formula are

A. l, w, and P

B. l, 2, and w

 $\mathsf{C.}\,2$ and l

D.2 and w

Answer:



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10. Which of the following expressions 'correctly' represents the expressin "fifteen divided by a number x"?

A.
$$15x$$

B.
$$x + 15$$

$$\mathsf{C.}\;\frac{15}{x}$$

D.
$$\frac{x}{15}$$



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11. Which of the following expressions 'correctly' represents the expression "x less than ten"?

A.
$$10 - x$$

B.
$$x - 10$$

 $\mathsf{C.}\ 10x$

D.
$$\frac{x}{10}$$

Answer:



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12. Jane has Rs. X with her. The amount with Colin is Rs. 15, which Rs. 2 more than that with Jane.

Which of the following equations correctly

represents the given information?

A.
$$x - 2 = 15$$

B.
$$x + 2 = 15$$

C.
$$x - 15 = 2$$

D.
$$x + 15 = 2$$

Answer:



13. The statement "two times a number y" is equivalent to which of the following expressions?

A.
$$y \div 2$$

B.
$$y - 2$$

$$C. y \div 2$$

D.
$$y imes 2$$

Answer:



14. If John has n marbles and loses five of them in a game, then the number of marbles left with him is equivalent to which of the following expressions?

A.
$$n \div 5$$

B.
$$n imes 5$$

C.
$$n + 5$$

$$D. n-5$$

Answer:



15. The equation 3 + x = 18 can be written in words as

A. Three more than a number x equals eighteen

B. Three less than a number x equals eighteen

C. Eighteen more than a number x equals three

D. Eighteen less than a number x equals

Answer:



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16. Which of the following statements is true about the equation $x \div 7 = 4$?

A. A number x, when divided by 7 equals 4.

B. 7, when divided by a number x equals 4.

- C. A number x, when divided by 4 equals 7.
- D. 4, when divided by a number x equals 7.



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- 17. If a table costs Rs.x and a chair costs Rs. (2x
- 3), then the cost of the chair is
 - A. Rs. 3 more than twice the cost of the

table

- B. Rs. 3 less than twice the cost of the table
- C. Rs. 2 more than thrice the cost of the table
- D. Rs. 2 less then thrice the cost of the table



18. Which equation correctly satisfies the statement "twenty-five less than thrice the number 'n' equal six"?

A.
$$3n - 25 = 6$$

$$B.25 - 3n = 6$$

$$C.3(n-25)=6$$

$$D. 3(25 - n) = 6$$

Answer:



19. Jerry had some chocolates and candies. The number of chocolates was 2 more than twice the number of candies. The candies were x in number.

The total number of chocolates with Jerry equals

B.
$$x + 2$$

$$C. 2x + 2$$



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20. Randy scored x marks in mathematics. His marks in biology were 3 more than two-thirds of the marks obtained by him in mathematics. The marks scored by Randy in biology were

A.
$$\frac{2}{3}x + 3$$

$$\mathsf{B.}\ \frac{3}{2}x+3$$

C.
$$\frac{2}{3}x + 2$$

D.
$$\frac{3}{2}x + 2$$



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21. The number of chairs in an auditorium is 4 more than thrice the number of tables in that auditorium. If the number of tables is x, then the number of chairs equals

A. 4x + 3

$$B.3x + 4$$

C.
$$\frac{x}{4} + 3$$

D.
$$\frac{x}{3}+4$$



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22. John's pocket money is Rs. 2 more than half the pocket money of his sister.

If John's sistter gets Rs. x, then John's pocket money in Rs. Is

A.
$$2x+rac{1}{2}$$

$$\mathsf{B.}\,x+\frac{1}{2}$$

$$\mathsf{C.}\,\frac{x}{2}+2$$

$$\mathsf{D}.\,x+2$$

Answer:

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23. The number of hours required by a bike to travel a particular distance is twice the number of hours required by a car to travel a

particular distance.

If the car takes x hours, the number of hours taken by the bike will be

A.
$$(x + 2)$$

$$\mathsf{B.}\;\frac{x}{2}$$

D.
$$(x - 2)$$

Answer:



24. State the number of terms in the following algebraic expression xy + 2yz + 9?



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25. Simplify the following expression:

$$7x + 5m - 3(-3m)$$
?



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26. Simplify the following expression:

$$5a^2b^2-4a^2b-ig(-10a^2b^2ig)$$

Conceptive Worksheet

1. In a zoo, the number of monkeys is three more than thrice the number of alligators. If there are y alligators in the zoo, then the number of monkeys is

A. 3y - 3

B. 3y + 3

$$\mathsf{C.}\,\frac{y}{3}-3$$

$$\operatorname{D.}\frac{y}{3}+3$$



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2. Tom's age is five years less than thrice of Ben's age. If Ben is x years old, then Tom's age, in years, is

A.
$$5x-3$$

B.
$$5x + 3$$

C.
$$3x - 5$$

D.
$$3x + 5$$



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3. If Sam and Raymond respectively have Rs. X and Rs. (x + 10) in their piggy banks, then which of the following statements is true?

- A. Sam has Rs. 10 more than Raymond.
- B. Raymond has Rs. 10 more than Sam.
- C. Sam has Rs. x less than Sam.
- D. Raymond has Rs. x less than Sam.



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4. The number of shirts with Andy is four more than half the number of shirts with John.

If John has s shirts, then which of the following

expressions is 'equivalent' to the number of shirts with Andy?

A.
$$\frac{s}{2} - 4$$

B.
$$\frac{s}{2} + 4$$

$$\mathsf{C.}\,4s-\frac{1}{2}$$

D.
$$4s+rac{1}{2}$$

Answer:



5. What is the value of variable y in equation

$$6y - 36 = 12$$
?

- A. 3
- B. 6
- C. 8
- D. 9

Answer:



6. What is the value of variable a in the equation 45 - 5a = 25?

A. 2

B. 3

C. 4

D. 5

Answer:



7. What is the value of variable a in the equation 3a + 5 = 32?

- **A.** 1
- B. 4
- C. 6
- D. 9

Answer:



8. The area of rectangle of length I and width w is given by the formula A=l imes w.

Which of the following statement is true with respect to the given formula?

A. There is no constant in the given formula.

B. There is no variable in the given formula.

C. There is only one constant in the given formula.

D. There is only one variable in the given formula.

Answer:



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9. Which of the following statements is the appropriate verbal expressions for the mathematical expression $\frac{5(Z-6)}{2}$?

A. Two times the difference of a number and six, divided by five

B. Five times the difference of a number and six, divided by two

C. Six times the difference of a number and five, divided by two

D. Six times the difference of a number and two, divided by five

Answer:



10. Which of the following expressins 'correctly' represents the verbal expressions "x more than fifteen"?

A.
$$x + 15$$

$$\mathsf{C.}\;\frac{x}{15}$$

D.
$$x - 15$$

Answer:



11. Jay is three years younger than Mike, whose age is y years.

Jay's age, in years, is 'equivalent' to which of the following expressions?

A. y - 3

B. y + 3

C. y imes 3

D. $y \div 3$



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12. The statement "three more than four times a number x" is equivalent to which of the following expressions?

$$A. 4x + 3$$

$$B.4x - 3$$

$$C. 3x + 4$$



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13. If Ben distributes Rs. x equally among his three children, then each child's share is equivalent to which of the following expressions?

- A. Rs.(x-3)
- B. Rs.(x+3)
- C. Rs.($x \div 3$)

D. Rs.(x
$$\times$$
 3)



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14. The expression "three times a number n" is equivalent to which of the following expressions?

A. n imes 3

B. n + 3

$$\mathsf{C}.\,n-3$$

D.
$$n \div 3$$



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15. Which of the following tables is correct?

B.
$$x + \frac{2}{3}$$
 Equation $x + 2 = 5$ Expression

D.
$$x+2=5$$
 Expression Expression



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16. If the length (l) (in m) and width (w) (in m) of a room are related by the expresion $w=rac{1}{2}l+1$, then the width of the room is

A. 1 m more than half of the length

B. 1 m less than half of the length

C. 2 m more than half of the length

D. 2 m less than half of the length

Answer:



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17. Which equation correctly satisfies the statement "seven less than eight times the number 'x' equals thirty three"?

A. 8x - 7 = 33

B.
$$7x - 8 = 33$$

C.
$$7 - 8x = 33$$

D.
$$8 - 7x = 33$$



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18. Which equation correctly represents the statement "the double of the sum of fourteen and twice a number 'a' equals forty"?

A.
$$14 + 2a = 40$$

$$B. \, 2(14+2a) = 40$$

$$\mathsf{C.}\,2\times 2a+14=40$$

D.
$$2(a+14)=40$$



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19. There were x tube lights in an auditorium.

The number of fans was 7 less than half the number of tube lights. The number of fans was

A.
$$\frac{x}{7}-2$$

B.
$$\frac{x}{2}-7$$

C.
$$rac{x}{2}+7$$

D.
$$\frac{x}{7}+2$$

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20. Mr. Smith's salary is half of Mr. Gere's salary. If Mr. Gere's salary is Rs.x, then the salary of Mr. Smith in Rs. is

B.
$$\frac{x}{2}$$

$$\mathsf{C}.\,x+2$$

$$\mathsf{D}.\,x-2$$



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21. Angelina weights 20 pounds less than two thirds the weight of Rambo.

If Rambo weights x pounds, then Angelina's weight in pounds is

A.
$$\frac{3}{2}x - 20$$

$$\mathsf{B.}\ \frac{2}{3}x-20$$

$$\mathsf{C.}\ \frac{2}{3}x+20$$

D.
$$\frac{3}{2}x + 20$$

Answer:



22. The number of flowers in the garden A is 5 less than thrice the number of flowers in the garden B.

If the number of flowers in garden B is x, then the number of flowers in garden A is

- A. 3x 5
- B. x 5
- C. 3x + 5
- D. x + 5

Answer:



23. Simplify $(2a^2b - 3bc) - (a^2b + 5bc - ca)$



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24. Simplify 2m(5m+4n)





26. Raju's father is thrice as old as Raju. If father's age is 45 years, then Raju's age is?



27. Half of a number is added to 18 then the sum is 46. Then the number is ?



Summative Worksheet

1. The equation 17x + 6 = 40 can be written in verbal form as

A. Six more than forty times a number x equals seventeen

- B. Six more than seventeen times a number x equals forty
- C. Forty more then six times a number x equals seventeen

D. Forty more than seventeen times a number x equals six

Answer:



- 2. The equation x + 7 = 3 can be written as
 - A. Three more than a number x is seven
 - B. Three less than a number x is seven
 - C. Seven more than a number x is three

D. Seven less than a number x is three

Answer:



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3. Johnson is three feet shorter than Bryan.

If Bryan's height is h feet, then Johnson's height, in feet, is

A. h - 3

B. h + 3

C. 3h

D. $\frac{h}{3}$

Answer:



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4. Eric secured five marks more than twice the marks secured by Eddy. If Eddy secured M marks, then which of the following expressions is equivalent to the marks scored by Eric?

- A. 2M + 5
- B. 2M 5
- C. 5M + 5
- D. 5M 5



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5. What is the value of variable y in the equation 4y - 15 = 13?

- A. 3
- B. 7
- C. 12
- D. 14



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6. What is the value of variable z in the equation 9z + 23 = 50?

- **A.** 3
- B. 5
- C. 7
- D. 9



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7. Some cadets are marching in a parade.

There are 8 cadets in each row. There are n

rows of cadets. How many cadets are marching

in the parade?

A. n - 8

B.n + 8

 $\mathsf{C.}\,\frac{8}{n}$

D. 8n

Answer:



8. Tom is Sally's younger brother and is 5 years younger than her. The age of Sally is x years. What is Tom's age in terms of Sally's age?

$$A. x + 5$$

D.
$$\frac{x}{5}$$

Answer:



9. The statement "four more than a number x" is equivalent to which of the following expressions?

B.
$$x + 4$$

$$C.x \times 4$$

$$D. x \div 4$$

Answer:



10. The expression "six less than five times a number n" is equivalent to which of the following expressions?

A.
$$5n + 6$$

$$B.6n + 5$$

Answer:



11. Eddy has three more marbles than twice the number of marbles with Rosy.

If Rosy has x marbles, then the number of marbles with Eddy is

A.
$$3x + 2$$

B.
$$2x + 3$$

Answer:



12. Which equation correctly represents the statement "seven less than a number 'x' when divided by four equals twenty"?

A.
$$\frac{7-x}{4} = 20$$

$$B. \frac{4-x}{7} = 20$$

$$\mathsf{C.}\,\frac{x-7}{4}=20$$

D.
$$\frac{x-4}{7} = 20$$

Answer:

13. Which equation correctly represents the statement "the sum of six and thrice the number 'n' when divided by five equals twelve"?

$$\mathsf{A.}\,\frac{5+3n}{6}=12$$

$$\mathsf{B.}\,\frac{6+3n}{5}=12$$

C.
$$\frac{3(n+5)}{6} = 12$$

D.
$$\frac{3(n+5)}{5} = 12$$



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14. The weight of a chair is x kg and the weight of a table is 8 kg lesser than twice the weight of the chair. What is the weight of the table in terms of x?

A.
$$(2x + 8)$$
kg

$$C. (8x + 2)kg$$

D. (8x - 2)kg

Answer:



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Hots Worksheet

1. The cost of an ice-cream cone is Rs. 1.50 more than the cost of a particular chocolate bar.

If the chocolate bar costs Rs.y, then the icecream cone costs

B. Rs.
$$(y + 1.50)$$

C. Rs.
$$\left(\frac{y}{1.50}\right)$$

Answer:



2. Ben's weight is four times Nick's weight.

If Nick's weight is x pounds, then Ben's weight, in pounds, is

A.
$$x + 4$$

C.
$$\frac{x}{4}$$

Answer:



3. Seven less than a number x when multiplied by five is equivalent to the expression

A.
$$x-7 imes 5$$

B.
$$(x - 7) \times 5$$

$$\mathsf{C.}\,7-x imes 5$$

D.
$$(7 - x) \times 5$$

Answer:



4. What is the value of variable p in the equation 49 - 7p = 21?

A. 3

B. 4

C. 5

D. 6

Answer:



5. Wht is the value of the variable m in the equation 3m - 7 = 11?

A. 3

B. 6

C. 8

D. 9

Answer:



6. What is the value of variable n in the equation 2n + 11 = 21?

A. 5

B. 8

C. 12

D. 13

Answer:



7. Which of the following expressions correctly represents the expression "eight times a number z"?

A.
$$8 \times z$$

$$B.8 + z$$

$$C. z - 8$$

$$D.z \div 8$$

Answer:



8. Which of the following expressions correctly represents the expression "number n divided by seventeen"?

$$\mathsf{C}.\,n \div 17$$

D.
$$17 \div n$$

Answer:



9. Which of the following expressions correctly represents the expression "five less than a number x"?

$$C. x \div 5$$

$$\mathsf{D.}\,5 imes x$$

Answer:



10. Adam is 4 inches shorter than Brad, whose

height is x inches

Adam's height, in inches, is

A.
$$x imes 4$$

$$B. x + 4$$

$$D. x \div 4$$

Answer:



11. Eric has 5 more pens than Kevin, who has p pens. The number of pens with Eric is

A.
$$p imes 5$$

B.
$$p + 5$$

$$C. p \div 5$$

D.
$$p - 5$$

Answer:



12. Mrs. Thomas divided n chocolates equally among her 2 children.

The number of chocolates received by each child is equivalent to which of the following expressions?

A.
$$2 imes n$$

B.
$$n+2$$

$$C. n \div 2$$

$$D.2-n$$

Answer:

13. Adam is three years elder to his brother Dan. If Adam's age is x years, then Dan's age is equivalent to which of the following expressions?

- A. (x + 3) years
- B. (x 3) years
- C. (2x + 3) years
- D. (2x 3) years



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14. The number of books in Andy's bag equals

x. If Sam has 3 more books than twice the
number of books with Andy, then the number
of books with Sam equals

A.
$$2x + 3$$

$$B.3x + 2$$

$$C. 2x - 3$$

D. 3x - 2

Answer:



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15. Gaudy purchased some pens and pencils.

For every pen, he purchased 2 pencils.

If the total number of pens puchased was x, then the number of pencils purchased was

A. x - 2

B. x + 2

C. x

D. 2x

Answer:



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lit Jee Worksheet

1. Simplify: - 6m - 12 + 7m - 14

A.
$$-13m - 26$$

$$B.-m-26$$

C.
$$m - 26$$

D.
$$13m - 26$$



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2. Simplify: 11r + 13 - 9r - 15

A. 2r + 28

B. 2r - 2

C. 2r - 28

D. 2r + 2

Answer:



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3. Simplify: 20p + 6 - 23p + 9

 $\mathsf{A.}-3p+15$

 $\mathsf{B.}-3p-15$

$$\mathsf{C.}\,3p+5$$

D.
$$3p - 15$$



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4. Which of the following are like algebraic tems?

 $-4pq, 5xy^2, 6ab, 0.7pq, 9abc, 3xy, -x^2yz$

 $\mathsf{A.}\,5xy^2,\,3xy,\,\,-x^2yz$

B. -4pq, 0.7pq

 $\mathsf{C.}\ 6ab,\ 9abc$

D. $5xy^2$, 3xy

Answer:



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5. State the unknowns and coefficient of -7pq.

A. Unknowns Coefficient (A) p, -q -7

Unknowns Coefficient

c. $\frac{\mathrm{Unknowns}}{\mathrm{(C)}}$ Coefficient -7D. $\frac{\mathrm{Unknowns}}{\mathrm{(D)}}$ Coefficient 7

_

Answer:



algebraic terms?

6. Which of the following is a pair of unlike

A. -pqr, 0.8qrp

 $B. a^2bc, -6ba^2c$

C. 1.5xzy, 3xyz

D.-mkn, 48kml

Answer:



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7. Given that p = -3 and q = 2, evaluate $p^2 + (-pq^2) - p^2q^2.$

A. -33

B. 6

C. -15

D. 36

Answer:



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8.
$$3mx^2 - 8n^2y + (-4mx^2) - n^2y =$$

 $A. -mx^2 - 9n^2y$

B. $7mx^2 - 9n^2y$

 $\mathsf{C.} - 7mx^2 + 9n^2y$

D.
$$7mx^2 + 9n^2y$$



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9. Evaluate
$$7px^2-ig(-4qy^2ig)$$
, given that p = -2,

q = 1, x = 3 and y = -4.

A. -4

B. 84

C. -62



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10. A number is divided by three and multiplied by the square of a second number. The product is then divided by three. Write the algebraic term for the given statements using p as the first number and q as the second number.

A.
$$9pq^2$$

B.
$$\frac{pq^-}{3}$$

C.
$$\frac{pq^2}{9}$$

D. $3pq^2$



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11. Which of the following are like algebraic terms?

A. $5y^2x$, $3xy^2-4y^2x$

 $\mathsf{B.}-4pq,\,0.7pq$

 $\mathsf{C.}\,6ab,\,9ba$

D. $5xy^2$, 3xy

Answer:



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12. Which of the following is a pair of unlike algebraic terms?

$$A. -pqr, 0.8qrp$$

$$B. a^2bc, -6ba^3c$$

$$\mathsf{C.}\,1.5x^2zy,\,3xyz$$

$$D.-kmn, 48kml$$



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13. Which of the following are monomials?

A. $2x^3$

$$\mathsf{B.}\,5x+4$$

$$\mathsf{C.}\,5y$$

D.
$$-9x^2 + 5y + 4$$



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14. Which of the following are binomials?

A. $2x^3$

B. 5x + 4

$$\mathsf{C.}\,5y^3+5y$$

D.
$$-9x^2 + 5y + 4$$



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15. i) Area of the rectangle = (length \times breadth)

ii) Perimeter of the rectangle = 2 (length + width)

Use the above information to solve the

following

The area of a rectangle is $24 \ cm^2$. The width is two less than the length. Find the length and width of rectangle.



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16. i) Area of the rectangle = (length \times breadth)

ii) Perimeter of the rectangle = 2 (length + width)

Use the above information to solve the

following

The Perimeter of rectangle is 20 cm. If the length of the rectangle is 6 cm. Find the width of the rectangle?



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17. i) Area of the rectangle = (length \times breadth)

ii) Perimeter of the rectangle = 2 (length + width)

Use the above information to solve the

following

If the length and width of the rectangle is give as 10 cm and 6 cm respectively. Then find the area and perimeter of the rectangle?



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18. A football team lost 5 yards and then gained 9. What is the team's progress?



19. Use distributive property to solve the problem below:

Maria bought 1 notebbooks and 3 pens costing 2 dollars each. How much did Maria pay?



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20. A customer pays 5 dollars for a coffee make after a discount of 2 dollars

What is the original price of the coffee maker?



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21. Half a number plus 5 is 9. What is the number?



22. If
$$\frac{a}{2} = 5$$
, $\frac{b}{3} = 5$, then

(B)
$$\frac{a}{b}$$
 (q) $\frac{3}{2}$

(C)
$$a^2 + b^2$$
 (r) 6



23. If l = 2, m = 4

Column - I Column - II

(A) $\frac{1}{m}$ (p) 2

(B) $\frac{m}{1}$ (q) 16

(C) 1m (r) $\frac{1}{2}$

(D) 1^2m (s) 8

(t) 32

(u) 1

