Mixed Practice - Expressions, Equations, Inequalities
Alg 1

Name: _____

1) Which is an illustration of the commutative property?

A) $a + 0 = a$
B) $ab = ba$
C) $a(b + c) = ab + ac$
D) $a(bc) = (ab)c$

2) The sentence $3 + (5 + 2) = (5 + 2) + 3$ illustrates

A) the associative property of addition
B) the distributive property of multiplication over addition
C) the additive identity element
D) the commutative property of addition

3) Which equation illustrates the associative property of addition?

A) $x + y = y + x$
B) $3(x + 2) = 3x + 6$
C) $(3 + x) + y = 3 + (x + y)$
D) $3 + x = 0$

4) Tori computes the value of 8 x 95 in her head by thinking 8(100 - 5) = 8 x 100 - 8 x 5. Which number property is she using?

A) closure
B) associative
C) commutative
D) distributive

Questions 5 and 6 refer to the following:

Solve the given proportion for the variable:

5) $\frac{6}{5} = \frac{x}{45}$

6) $\frac{a}{8} = \frac{a+1}{10}$

7) What is the value of the expression $4x^2 + 5x$ when $x = 3$?

A) 96
B) 51
C) 123
D) 39

8) What is the value of the expression $-2ab^2 - 2b^3$ when $a = -2$ and $b = -3$?

A) 90
B) -23
C) 23
D) -90

Questions 9 through 12 refer to the following:

Simplify the given expression:

9) $10x + 9y - 2x + y$

A) $10x + 8y$
C) $-x + 19y$
B) $19x - y$
D) $8x + 10y$

10) $(3x^2 - 5x + 9) + (7x^2 + 8x - 15)$

A) $10x^2 + 3x - 6$
C) $10x^2 + 3x + 6$
B) $10x^2 - 3x - 6$
D) $10x^2 - 3x + 6$

11) $(3x^2 - 4xy + 7y^2) - (7x^2 - 6xy - 3y^2)$

A) $-4x^2 - 2xy + 10y^2$
B) $-4x^2 - 10xy + 10y^2$
C) $-4x^2 + 2xy + 10y^2$
D) $4x^2 - 10xy + 10y^2$

12) $4(3x - 2) + 7(3 - 2x)$

A) $2x + 13$
C) $2x - 13$
B) $-2x - 13$
D) $-2x + 13$

Questions 13 and 14 refer to the following:

Find the product of the given expression:

13) $y(3x - 5y)$

A) $3xy - 5y^2$
C) $3y - 5y$
B) $3xy - 5y$
D) $3x - 5y^2$

14) $5x^3(2x^4 - x^3 + 3)$

A) $10x^{12} - x^9 + 15x^3$
B) $7x^7 - 5x^6 + 15x^3$
C) $10x^7 - 5x^6 + 15x^3$
D) $10x^7 - x^3 + 3$

Questions 15 and 16 refer to the following:

Find the product of the given terms:

15) $(-12y^7)(-4y^3)$

16) $(5xy^2)(3x^2y)$

17) What is the product of $(x - 8)(x + 9)$?

18) Halõs' rectangular bedroom has a length of $(2x - 5)$ and a width of $(x + 1)$. Which equation describes the area (A) of Halõs' bedroom in terms of x?

A) $A = 2x^2 - 5x + 1$
B) $A = 3x - 4$
C) $A = 6x - 8$
D) $A = 2x^2 - 3x - 5$

19) Expand and simplify the given polynomials:

$(x + 1)(4x^2 - 4x + 9)$

A) $4x^3 + 5x + 9$
B) $4x^3 - 5x + 9$
C) $4x^3 + 2x^2 + 5x + 9$
D) $4x^3 + 4x^2 + 5x + 9$

20) Use the distributive property to solve for x in the equation $7x - 10 = 7(x - 1) + x$.

21) What is the solution for n given the equation $4n + 32 = 8n - n + 14$?

22) What is the solution for w given the equation $4 - 2w = 6w$?

Questions 23 through 26 refer to the following:

Solve the given equation for the variable and check:

23) $\frac{5}{7}m + 10 = 25$

24) $\frac{1}{9}w - 4 = 2$

25) $4(3x - 5) + 15 = 19$

26) $d(d + 1) = (d - 3)(d - 2)$

27) What is the value of x if $3ax + a = 5a$?

A) $\frac{5a}{3}$
B) $\frac{4}{3}$
C) $\frac{3}{5}$
D) $\frac{3a}{5}$

28) What is the value of x if $z = xy + b$?

A) $\frac{b - z}{y}$ C) $\frac{z + b}{y}$

B) $\frac{z - b}{y}$ D) $\frac{b + z}{-y}$

29) What is the value of x if $5x - 8w = 9z$?

A) $\frac{9z - 8w}{5}$ C) $\frac{9z + 8w}{5}$

B) $\frac{8w - 9z}{5}$ D) $\frac{9z + 8w}{-5}$

30) If $9x + 2a = 3a - 4x$, then x equals

A) $-a$ C) a

B) $\frac{a}{13}$ D) $\frac{5a}{12}$

31) In the equation $A = p + prt$, t is equivalent to

A) $\frac{A - pr}{p}$ C) $\frac{A}{pr} - p$

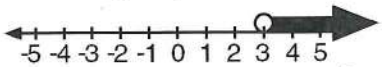
B) $\frac{A}{p} - pr$ D) $\frac{A - p}{pr}$

32) Which ordered pair is *not* in the solution set of $y > 2x + 1$?

A) (2,5) C) (1,6)

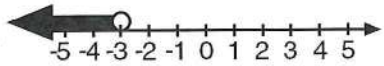
B) (3,8) D) (1,4)

33) Which of the following represents the solution set and graph for the inequality $5x < 15$?

A) $x > 3$, 

B) $x > -3$, 

C) $x < 3$, 

D) $x < -3$, 

Questions 34 and 35 refer to the following:

Solve and graph the solution set for the given inequality in the domain of the set of real numbers:

34) $3x - 5 < 7$

35) $6x - 4 - 8x < 14$