

Name _____

Order of Operations

1) $14 \div 7 + 3^2$ 2) $42 \div 2(-12 + 9)$ 3) $\sqrt{49}$ 4) $|-14|$

5) $18 - 30 \div 5$ 6) $48 \div (5 + 7) - 9$ 7) $4^3 - 5(2) + 13$

Adding/Subtracting/Multiplying/Dividing Positive and Negative Numbers

8) $\frac{-4}{\left(\frac{3}{4}\right)}$ 9) $\left(\frac{3}{5}\right)\left(-\frac{7}{12}\right)$ 10) $\frac{3}{4} + \frac{1}{6}$ 11) $2\frac{1}{3} - \frac{7}{9}$ 12) $\left(\frac{2}{3}\right) \div \left(1\frac{5}{9}\right)$

Evaluating Expressions

13) $3(n - 1) + 2n$, when $n = 5$ 14) $7b - 2a$, when $a = -3$ and $b = 4$

15) $3x^2 + 5x + 1$, when $x = -2$ 16) $\frac{2r}{t} + 7$, when $r = 12$ and $t = 3$

17) $(3x)^2 - 7y^2$, when $x = 3$ and $y = 2$ 18) $4(3d + 6) - 2d$, when $d = -6$

Properties

Match each equation on the left with the property it illustrates on the right.

19) $4 + (9 + 6) = (4 + 9) + 6$

A. Identity Property of Addition

20) $x + 12 = 12 + x$

B. Associative Property

21) $(3 + y) + 0 = 3 + y$

C. Distributive Property

22) $x \cdot 1 = x$

D. Identity Property of Multiplication

23) $5(x + y) = 5x + 5y$

E. Commutative Property

Distributive Property

Simplify each expression using the distributive property.

Example: $4(x + 5) = 4(x) + 4(5) = 4x + 20$

24) $3(b + 9)$

25) $5(2x - 3)$

26) $-3(4x + 9)$

27) $x(2x + 4)$

28) $\frac{1}{2}(4r + 12)$

29) $-(6p - 11)$

Simplifying Expressions

Simplify each expression by distributing and combining like terms.

30) $4x + 7y - 14x + 2y$

31) $-13 - 4y - 5z + 15 - (-4z) + 11y$

34) $9(6 + 2y) - 5 + 2y$

32) $20xy + 3x^2y - 10x^2y - 30xy$

35) $2(3x - 1) + 3(x + 7)$

33) $-3(2x - 5y)$

36) $9(2x + 4) - 2(3x - 1)$

Translating Expressions and Equations

Write an algebraic expression or equation to represent each verbal expression.

Example: 18 less than the quotient of a number and 3. $\rightarrow \frac{n}{3} - 18$

37) The sum of six times a number and 25

38) 7 less than fifteen times a number

38) Four times the square of a number increased by five times the same number

39) The sum of a number and 23 is 78.

40) The sides of a rectangle are a number and four less than that same numbers. The perimeter is 56. Find the dimensions of the rectangle.

41) If a number is decreased by 6, and the result is multiplied by 3, than the answer is 15. Find the unknown number.