

I can write an algebraic expression for a situation (1-1)

write an algebraic expression for each verbal expression.

Answers

1. Eight times the sum of a number cubed and four.

1. $8(n^3 + 4)$

2. The quotient of a number squared plus eleven and six less than a different number.

2. $\frac{n^2 + 11}{a - 6}$

3. When water freezes, its volume increases.
The volume of ice equals:

3. $x + \frac{1}{11}x$

- the sum of the volume of the water and the product of one-eleventh and the volume of water.

If x cubic centimeters of water is frozen, write an expression for the volume of water that is formed.

I can evaluate expressions with the order of operations (1-2)

Evaluate the following expressions. Show all necessary work.

4. $60 - (13 - 5)$

4. 52

5. $2[2(2 - 2)] - 1$

5. -1

6. $x(xy + z)$ when $x = 4$, $y = 3$ and $z = 5$

$\begin{array}{r} 17 \\ 4 \\ \hline 68 \end{array}$

6. 68

7. $(15)(3)^2 + (4 - 2) =$

$15 \cdot 9 + (2)$
 135

7. 137

8. $\frac{xy^2 - x^2}{5 - 4(x + y)}$ when $x = 4$, $y = 3$ and $z = 5$

$-\frac{20}{23}$

8. $-\frac{20}{23}$

$\frac{4 \cdot 9 - 16}{5 - 4(7 + 3)}$

$\frac{36 - 16}{-23}$

$5 - 28$

I can solve open sentences(1-3)

Find the solution set of this expression given its replacement set.

$$\frac{15}{20} = \frac{3}{4} + \frac{2}{5}$$

9. $x + \frac{2}{5} < 1\frac{3}{20}$

✓ ✓
 $\left\{ \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4} \right\}$

9. $\left\{ \frac{1}{4}, \frac{1}{2} \right\}$

10. Which of the following is the solution set for $3x^2 + 4(2) \leq 56$ if the replacement set is $\{2, 3, 4, 5, 6, 7\}$?

✓ ✓ ✓
 10. $\{2, 3, 4\}$

I can identify the key properties of algebra: identity, inverse, transitive, substitution, commutative, and associative. (1-4, 1-6)

Additive Identity Property	For any number a , $a + 0 = 0 + a = a$.
Multiplicative Identity Property	For any number a , $a \cdot 1 = 1 \cdot a = a$.
Multiplicative Inverse Property	For any nonzero number a , there is exactly one number $\frac{1}{a}$ such that $\frac{1}{a} \cdot a = a \cdot \frac{1}{a} = 1$.
Multiplicative Property of Zero	For any number a , $a \cdot 0 = 0 \cdot a = 0$.
Reflexive Property	For any number a , $a = a$.
Substitution Property	For any numbers a and b , if $a = b$, then a may be replaced by b in any expression.
Symmetric Property	For any numbers a and b , if $a = b$, then $b = a$.
Transitive Property	For any numbers a , b , and c , if $a = b$ and $b = c$, then $a = c$.
Commutative of addition	$a + b = b + a$
Associative of addition	$a + (b + c) = (a + b) + c$
Commutative of multiplication	$ab = ba$
Associative of multiplication	$a(bc) = (ab)c$

Name the property or properties illustrated by each statement.

11. If $13 = 4 + 9$, then $4 + 9 = 13$.

11. Symmetric

12. If $x + 5 = 3$ and $3 = y$, then $x + 5 = y$.

12. Transitive

13. $\frac{15}{3} + 4 = 5 + 4$

13. substitution

14. $ab + c = c + ab$

14. Commutative

15. $g + h + 2 = h + g + 2$

15. Commutative

16. $(6)(5)x = 6(5x)$

16. associative

I can simplify expressions using the properties of algebra (1-4,1-6)

Evaluate this expression. Name the property used in each step.

17. $5(14 - 39 \div 3) + 4 \cdot \frac{1}{4}$

$5(14 - 13) + 4 \cdot \frac{1}{4}$

arithmetic

$5 \cdot 1 + 4 \cdot \frac{1}{4}$

arithmetic

$5 + 4 \cdot \frac{1}{4}$

identity

$5 + 1$

inverse

6

arithmetic

I can simplify expressions using the distributive property (1-5)

Simplify each expression. If not possible, write *simplified*.

Answers

(Show all work)

18. $\frac{1}{2}(x + 8)$

18. $\frac{1}{2}x + 4$

19. $-4(6x^2 + 4x - 2)$

19. $-24x^2 - 16x + 8$

I can combine like terms (1-5)

20. $4m + 6 + 2m - 5 - 19$

20. $6m - 18$

21. $7r^2 + \underline{r} + \underline{5r} - 9r^2 - \underline{7} + \underline{10r} + \underline{13}$

21. $-2r^2 + 16r + 20$

22. $8(9x + 4) - 7x$

22. $65x + 32$

$72x + 32 - 7x$

23. $5 + 3(2x - 8)$

$5 + 6x + 24$

23. $\underline{-6x + 29}$

I can add polynomials (8-5)

24) $(7x^2 - 8) + (3x^2 + 1)$

24. $\underline{10x^2 - 7}$

25) $(3p^2 - 2p + 3) - (p^2 + 7p + 7)$

25. $\underline{2p^2 + 5p - 4}$

26) $(5a^2x + 3ax^2 - 5x) + (2a^2x - 5ax^2 + 7x)$

26. $\underline{7a^2x - 2ax^2 + 2x}$

27) $(7x^2 + x + 1) + (3x^2 + 4x + 3)$

27. $\underline{4x^2 + 5x + 4}$

Higher Level Item

28)

Write an equation that demonstrates one of the identity properties.

Name the property used in the equation.

$\frac{3}{4} + 0 = \frac{3}{4}$ This is an example of the additive identity

29)

Describe how to use the Commutative and Associative Properties to simplify the evaluation of $18 + 33 + 82 + 67$.

I would rearrange and group the numbers like this $(18 + 82) + (33 + 67)$
This gives me $100 + 100 = 200$

OAA Focus

30)

Which is the value of x when $\frac{x}{3} + 5 = 15$?

A. $x = 30$

B. $x = 40$

C. $x = 50$

D. $x = 60$

31)

The County Fair charges a \$3 entrance fee. The cost of each ride is \$2.

Which equation represents the cost (y) of getting into the fair and going on x number of rides?

A. $y = 3 + 2 + x$

B. $y = (3 + 2)x$

C. $y = 3 + 2x$

D. $y = 3x + 2$