

Write a verbal expression for each algebraic expression.

1) $h + 8$

a number increased by 8

2) $3n$

the product of 3 and a number

3) $5 - 6n^2$

5 decreased by the product of 6 and the square of a number

4) $2n + 9$ the quotient of twice a number and 9

Write an algebraic expression for each verbal expression.

5) a number increased by 2

$n + 2$

6) 7 less than three times a number

$3n - 7$

7) the product of 9 and a number squared

$9n^2$

8) 12 less than five times the cube of a number

$5n^3 - 12$

Evaluate using Order of Operations

9) 18 $4 + 5 \cdot 3 - 1$

$4 + 15 - 1 = 19 - 1$

10) 21 $3(10 - 4) + 9 \div 3$

$3(6) + 3 = 18 + 3$

11) 19 $7 + 2(9 - 3)$

$7 + 2(6) = 7 + 12$

12) 3 $\frac{7 + 4^2 \cdot 2}{14 - 1}$

$\frac{7 + 16 \cdot 2}{13} = \frac{7 + 32}{13} = \frac{39}{13}$

Evaluate each expression for the given values of the variables: $a = 4, b = 3, c = -2$

13) -14 $c(a + b)$ $-2(4 + 3) = -2(7)$

14) -24 $a^2 \cdot b \div c$ $4^2 \cdot 3 \div (-2) = 16 \cdot 3 \div (-2) = 48 \div (-2)$

15) -28 $2c^2 - 3ab$ $2(-2)^2 - 3(4)(3) = 2(4) - 36 = 8 - 36$

Name the property illustrated.

16) $a + b = b + a$ commutative

17) $(a + b) + c = a + (b + c)$ associative

18) $5 + 0 = 5$ additive identity

19) $4 \cdot 1 = 4$ multiplicative identity

20) $a = a$ reflexive

21) If $a = b$, then $b = a$. symmetric

22) $a(b + c) = ab + ac$ distributive

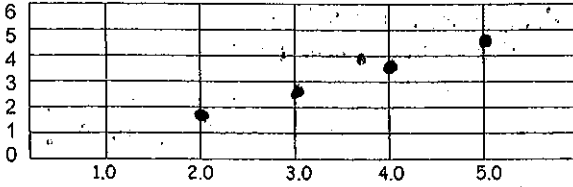
23) If $a = 3$ and $3 = 2 + 1$, then $a = 2 + 1$. substitution

37) For the following questions, use the table that shows 2006 airmail letter rates to New Zealand.

Weight (oz.)	Rate (\$)
2.0	1.80
3.0	2.75
4.0	3.70
5.0	4.65

1. Write the data as a set of ordered pairs. $\{(2, 1.80), (3, 2.75), (4, 3.70), (5, 4.65)\}$

2. Draw a graph that shows the relationship between the weight of a letter sent airmail and the total cost.



Fill in the indicated information for each of the given graphs:

Linear or non-linear (circle one)

x-intercept:

1, 3.5

y-intercept:

3

symmetry:

$x=2$

positive:

$x < 1$

negative:

$x > 2.5$

increasing:

$x > 2$

decreasing:

$x < 2$

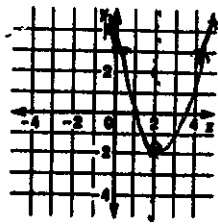
relative maxima:

none

relative minima:

$-2 @ x=2$

end behavior: left: as x decreases, y increases
right: as x increases, y increases



Linear or non-linear (circle one)

x-intercept:

-3.5, -1, 2

y-intercept:

-2

symmetry:

none

positive:

$-3.5 < x < -1$; $x > 2$

negative:

$-1 < x < 2$

increasing:

$x < -2$

$x > 0$

decreasing:

$-2 < x < 0$

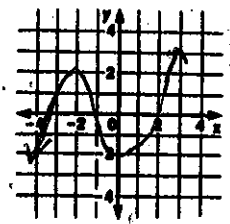
relative maxima:

$2 @ x = -2$

relative minima:

$-2 @ x = 0$

end behavior: left: as x decreases, y decreases
right: as x increases, y increases



Simplify using the Distributive Property and combine like terms if possible.

24) $2(x-5)$
 $2x-10$

25) $6(x^2-x-3)$
 $6x^2-6x-18$

26) $6m+5(m-n)$
 $6m+5m-5n$
 $11m-5n$

27) $4x-7x(2x+1)$
 $4x-14x^2-7x$
 $-3x-14x^2$

Find the solution set of each equation if the replacement set is $\{1, 3, 5, 7, 9\}$.

28) $3x-11=16$
 $3(9)-11$
 $27-11=16$
 $\{9\}$

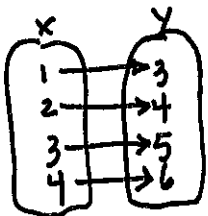
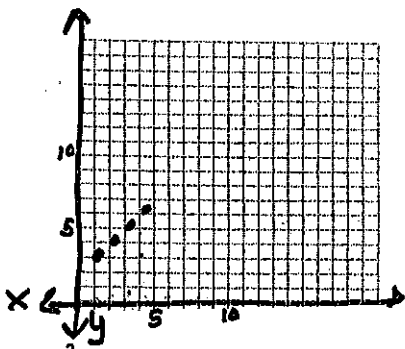
29) $2(x-1)=8$
 $2(5-1)$
 $2(4)=8$
 $8=8$
 $\{5\}$

Express each relation as a table, a graph, and a mapping. Write its domain & range. Then determine if it is a function.

30) $\{(1, 3), (2, 4), (3, 5), (4, 6)\}$

x	1	2	3	4
y	3	4	5	6

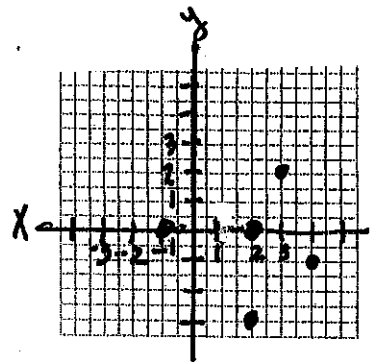
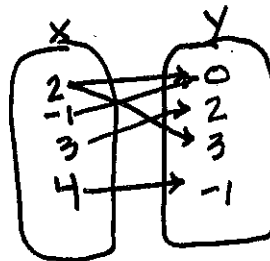
D: $\{1, 2, 3, 4\}$
R: $\{3, 4, 5, 6\}$
Yes, function.



31) $\{(2, 0), (-1, 0), (3, 2), (2, -3), (4, -1)\}$

x	2	-1	3	2	4
y	0	0	2	-3	-1

D: $\{2, -1, 3, 4\}$
R: $\{0, 2, -3, -1\}$
NOT a function.



If $f(x) = 2x + 4$ and $g(x) = x^2 - 3$, find each value.

32) $f(-3)$
 $f(-3) = 2(-3) + 4$
 $= -6 + 4$
 $= -2$

33) $g(2)$
 $g(2) = (2)^2 - 3$
 $= 4 - 3$
 $= 1$

34) $f(7)$
 $f(7) = 2(7) + 4$
 $= 14 + 4$
 $= 18$

35) $g(-1)$
 $g(-1) = (-1)^2 - 3$
 $= 1 - 3$
 $= -2$

Which of the following is NOT a function?

