

Name: Teacher's

Date: _____

Algebra Review Package

Lessons 5 – 10

Lesson 5

Complete the following table:

Monomial	Variable	Coefficient	Constant	Number of terms	Degree
$4x^3$	x	4	$-$	1	3
$-2x^6y^4$	x, y	-2	$-$	1	10
$2x + 4y + 4$	x, y	$2, 4$	$+4$	3	$2x^{\textcircled{1}}, 4y^{\textcircled{1}}$
$y^4 + 4$	y	1	4	2	$4, 0$
-8	$-$	$-$	-8	1	0
$-3xy^2$	xy	-3	$-$	1	3

Lesson 6

a) $a + a = \underline{2a}$

d) $-x + x = \underline{\cancel{0}}$

g) $2a + a = \underline{3a}$

b) $x^2 + x^2 = \underline{2x^2}$

e) $m + m = \underline{2m}$

h) $a + (-2a) = \underline{-a}$
 $a - 2a$

c) $b - 9b = \underline{-8b}$

f) $x^3 + 3x^3 = \underline{4x^3}$

i) $\cancel{a - a - a + a} = \underline{\cancel{0}}$

Lesson 7

a) $4(3e - 4)$
 $\underline{12e - 16}$

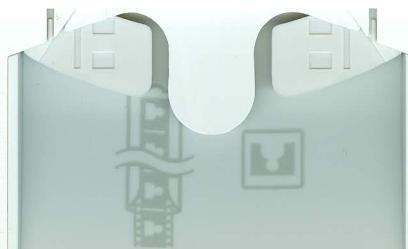
c) $-(4d + 5)$
 $\underline{-4d - 5}$

e) $-2(12b + 8)$
 $\underline{-24b - 16}$

b) $(21b - 14) \div 7$
 $\underline{3b - 2}$

d) $\frac{2d + 4}{2}$
 $\underline{d + 2}$

f) $\frac{1(24n - 36)}{4}$
 $\underline{6n - 9}$



Lessons 5, 6 & 7

Simplify the following expressions:

a) $(2x + 6) + (5a - 7)$

$2x + 6 + 5a - 7$
 $5a + 2x - 1$

b) $(12b - 5) - (2b + 5) - (2b - 5)$

$12b - 5 - 2b - 5 - 2b + 5$
 $8b - 5$

c) $-6(4a + 2) - 2(4 - 4a)$

$-24a - 12 - 8 + 8a$
 $-16a - 20$

d) $(28v - 7) \div 7 + 4(2v - 6)$

$4v - 1 + 8v - 24$
 $12v - 25$

e) $\frac{1}{4}(8x - 12) - \frac{1}{5}(25x - 30)$

$2x - 3 - 5x + 6$
 $-3x + 3$

f) $2a(4c + 2d)$

$8ac + 4ad$

Lesson 8

1. Translate each of the following statements into a mathematical expression.

a) Twice the number x :

$2x$

b) The quotient of x and 7:

$x/7$

c) Five times the cube of b :

$5b^3$

d) A fifth of the product of the square of p and q :

$\frac{1}{5}(pq)^2$

e) Two thirds of the product of p and the square of q :

$\frac{2}{3}pq^2$

f) Triple the square of a :

$3a^2$

g) Twice the cube of a .

$2a^3$

h) The product of n and 21.

$21n$

i) The sum of one third of z and 3.

$\frac{1}{3}z + 3$

j) The quotient of 32 and c .

$32 \div c$

k) 5 less than one third of n .

$\frac{1}{3}n - 5$

l) Double the sum of d and 5.

$2(d + 5)$

m) One quarter of b increased by twice b .

$\frac{1}{4}b + 2b$

Solve the following problems.

All must be simplified find an

1. ~~Clem~~ ^{George} bought 3 items at the ~~hardware store~~ ^{store}. The first item cost x dollars, the second item cost ~~3 times~~ ^{a quarter} ~~more than~~ the first item, and the third item cost ~~half~~ ^{to represent the average of these 3 items.} as much as the first item. Give the algebraic expression for the total amount Clem spent.

1	2	3
x	$3x$	$\frac{x}{4}$

$$\frac{x + 3x + .25x}{3}$$

$$.33x + 1x + .08x = 1.41x$$

2. Isabelle got $12x + 28$ new hockey cards. She kept 10 cards and gave the rest to her 3 younger brothers. What is the algebraic expression representing the number of cards each brother received?

$$\frac{(12x + 28) - 10}{3}$$

$$\frac{12x + 18}{3}$$

$$4x + 6$$

3. If n represents the smallest of 3 consecutive whole numbers, what is the algebraic expression for the sum of these 3 numbers?

1	2	3
n	$n+1$	$n+2$

$$n + n + 1 + n + 2 = 3n + 3$$

4. Claire is 10 years older than twice Eliza's age, and Philip's age is 40 years less than three times Claire's age. What algebraic expression represents the average age of these three people?

C	E	P
$2x + 10$	x	$3(2x + 10) - 40$

$$\frac{2x + 10 + x + 3(2x + 10) - 40}{3} = 3x$$

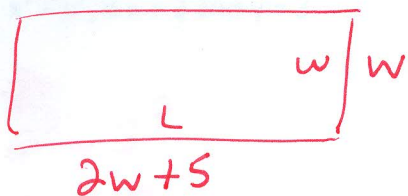
5. At a flower shop, a rose costs \$1.50 more than a carnation. Rebecca buys eight roses and five carnations to make a bouquet of flowers. What algebraic expression represents the total cost of the bouquet?

r	c
$x + 1.5$	x

(8 roses) (5 carn.)

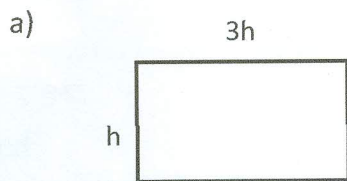
$$8(x + 1.5) + 5x = 8x + 12 + 5x = 13x + 12$$

6. The length of a rectangular field is 5m more than twice its width. What algebraic expression represents the perimeter of this rectangle?



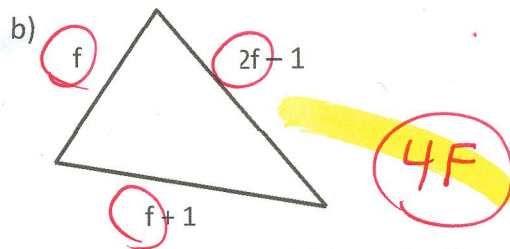
$$w + w + 2w + 5 + 2w + 5 = 6w + 10$$

7. Give the algebraic expression for the perimeter of each figure.

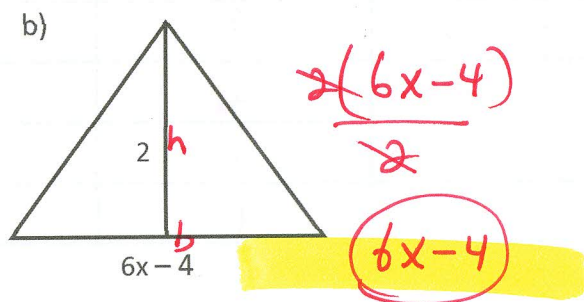
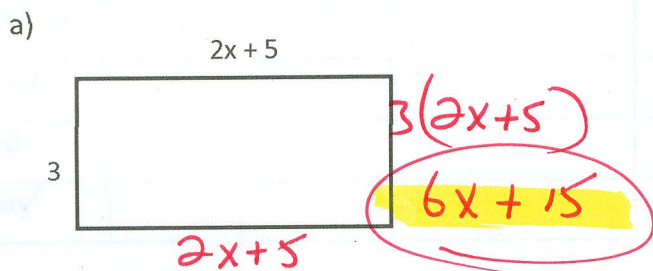


$$3h + 3h + h + h$$

$$8h$$



8. Determine the area of each of the following polygons.



Lesson 10

Replace the variable with the given number for each of the following expressions.

1. $x^2 - y^2$, if $x = 2$ and $y = 1$

$$2^2 - 1^2$$

$$4 - 1$$

$$3$$

2. $1 \div (3 - t)$, if $t = -3$

$$1 \div (3 - (-3))$$

$$1 \div (3 + 3)$$

$$1 \div 6 = .17$$

3. $(3x)^3$, if $x = -1$

$$(3(-1))^3$$

$$(-3)^3$$

$$(-3)(-3)(-3) = -27$$

4. $x^2 - y^2$, if $x = 2$ and $y = 3$

~~$$2^2 - 3^2$$~~

$$2^2 - 3^2$$

$$4 - 9$$

$$-5$$

5. $-2b^2 + b$, if $b = 4$

$$-2(4^2) + 4$$

$$-2(16) + 4$$

$$-32 + 4 = -28$$

6. $3a^2 - ab - bc$, if $a = 1$, $b = 2$ and $c = 3$

$$3(1^2) - (1)(2) - (2)(3)$$

$$3 - 2 - 6$$

$$-5$$

7. $(2m^2 - 4m + 3) \div (7 - m)$, if $m = -1$

$$(2(-1)^2 - 4(-1) + 3) \div (7 - (-1))$$

$$(2 + 4 + 3) \div (7 + 1)$$

$$9 \div 8 = 1.13$$

8. $3x^2 + 5x + 9$, if $x = -2$

$$3(-2)^2 + 5(-2) + 9$$

$$12 - 10 + 9$$

$$11$$