Integrated 1 Ch. 6 Team Test

Show all work for full credit. Pencil only.

1. Solve each equation for the indicated variable **(4 pts each, ___/8 pts)**

   a. $4x - 3y = 20$, solve for x

   $4x = 3y + 20$

   $\boxed{x = \frac{3}{4}y + 5}$

   b. $A = \frac{1}{2}bh$, solve for b

   $2A = bh$

   $\boxed{\frac{2A}{h} = b}$

2. Solve the system of equations: **(5 pts each, ___/15 pts)**

   a) $3x - 5y = 9$
   $\boxed{x = 2y + 4}$

   $3(2y+4) - 5y = 9$

   $6y + 12 - 5y = 9$

   $y + 12 = 9$

   $\boxed{y = -3}$

   $x = 2(-3) + 4$
   $x = -6 + 4$
   $\boxed{x = -2}$

   Solution: $(-2, -3)$

   b) $x + y = 1$
   $+\ 3x - y = -5$
   _____
   $4x = -4$
   $\boxed{x = -1}$

   $-1 + y = 1$
   $\boxed{y = 2}$

   Solution: $(-1, 2)$

   c) $x = 4y + 1$
   $x = -2y - 5$

   $4y + 1 = -2y - 5$
   $+2y \qquad +2y$
   $6y + 1 = -5$
   $6y = -6$
   $\boxed{y = -1}$

   $x = 4(-1) + 1$
   $x = -4 + 1$
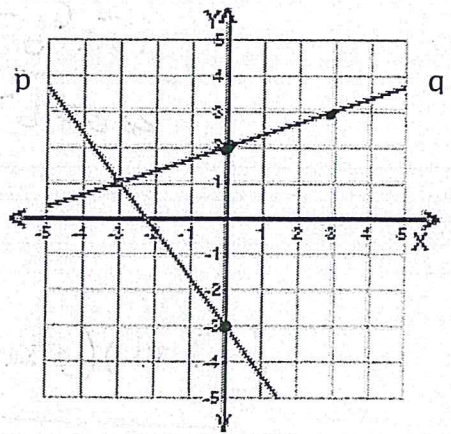 $x = -3$

   Solution: $(-3, -1)$

3. The graphs of two equations are down at the right.

   a) Write an equation for each line p and q

   q $\;\; y = \frac{1}{3}x + 2$ $\qquad$ p $\;\; y = \frac{-4}{3}x - 3$

   b) By looking at the graph, does $x = -3$ and $y = 1$ solve both of the equations that you wrote in part (a)? How do you know?

   yes, looks like intersection pt.

   c) Solve the system of equations you wrote in part (a) algebraically. Verify your solution by checking the answer.

   $3\left(\frac{1}{3}x + 2 = \frac{-4}{3}x - 3\right)$

   $x + 6 = -4x - 9$

   $5x = -15$

   $\boxed{x = -3}$

   $y = \frac{1}{3}(-3) + 2$

   (4 points each, ___/12 pts)

   Solution: $(-3, 1)$

4. Solve each equation. Show all work for full credit. **(4 pts each, ____/8 pts)**

$15\left(\dfrac{x}{3} + \dfrac{x}{5} = 16\right)$ a.

$5x + 3x = 240$

$8x = 240$

$\boxed{x = 30}$

b. $-5x + 3(x-5) = 2x + 9$

$-5x + 3x - 15 = 2x + 9$

$-2x - 15 = 2x + 9$

$-4x = 24$

$\boxed{x = -6}$

5. An item currently costing \$20 increasing in cost by 15% per year. What is the multiplier? __1.15__ .

(____/3 pts)

6. Given the sequence:

n	t(n)
1	-3
2	-15
3	-75
4	-375
5	-1875

$\times 5$ $\times 5$

a) Arithmetic or **Geometric** *(circle one)*

b) What is the multiplier? __5__

c) find t(0)? $\boxed{\dfrac{-3}{5} = -.6}$

d) Find the explicit equation for the table to the right: $a_n = (-3)(5)^{n-1}$

$a_n = a_1(r)^{n-1}$

(2 pts each, ___/ 8 pts)

7. Simplify. Your final answer should have no negative exponents and no decimals.

a) 123^0	b) 123^{-1}	c) $(5x^{-10}y^7)(2x^4y^{-5})^3$
1	$\dfrac{1}{123}$	$(5x^{-10}y^7)(8x^{12}y^{-15})$ $\boxed{\dfrac{40x^2}{y^8}}$

d) $\dfrac{15a^6b^{-6}}{20a^{-3}b^{-10}}$

$\dfrac{15a^6b^{-6}}{20a^{-3}b^{-10}} = \boxed{\dfrac{3a^3b^4}{4}}$

(2 points each,___/8 pts)

8. Multiply each:

A.

$(5x + 3)^2$

$(5x + 3)(5x + 3)$

	$5x$	$+3$
$5x$	$25x^2$	$15x$
$+3$	$15x$	9

$\boxed{25x^2 + 30x + 9}$

B.

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

$12x^2 + 15x - 8x - 10$

$\boxed{12x^2 + 7x - 10}$

(4 pts each, ___/8 pts)

DIRECTIONS: Pick 2 of the 3 word problems. You only have to do 2.

9. Write a system of equations to solve this problem. Solve the system and interpret the answer in context.

Phoebe was helping her mom buy gifts for her little sister's birthday party. There were 11 friends attending the party. Dragonfly wings for the boys cost $1 while fairy wings for the girls cost $2. Phoebe's mom spent $18 on the gifts. How many dragonfly wings and fairy wings did Phoebe's mom purchase?

$$D + F = 11$$
$$D + 2F = 18$$
$$-F = -7$$
$$F = 7$$

$$D + 7 = 11$$
$$D = 4$$

Phebe bough 4 Dragon fly wings and 7 fairy

(____/15 pts)

10. You buy 32 tickets. Each adult ticket is $3.75 and each child ticket is $1.25. You pay a total of $87.50. Find the number of child and adult tickets.

a) Define the variables: let C=___Child___ and let A=___Adult___

b) Write 2 equations, one for the number of tickets, and one for the cost.

$$C + A = 32 \qquad 3.75A + 1.25C = 87.50$$

c) Solve the system of equations.

$$\rightarrow 3.75(A + C = 32)$$

$$13 + A = 32$$
$$A = 19$$

$$3.75A + 1.25C = 87.50$$
$$3.75A + 3.25C = 120$$
$$-2.5C = -32.50$$
$$C = 13$$

d) Check your solution.

$$19 + 13 = 32 \qquad 3.75(19) + 1.25(13) = 87.50$$
$$32 = 32 \checkmark \qquad 71.25 + 16.25 = 87.50$$
$$87.5 = 87.5 \checkmark$$

e) Write complete sentences that put the answers back into context.

19 Adults and 13 children went to the show!

(3 pts each, ____/15 pts)

11. On Tuesday the cafeteria sold pizza slices and burritos. The number of pizza slices sold was 20 less than twice the number of burritos sold. Pizza sold for $2.50 a slice and burritos sold for $3.00 each. The cafeteria collected a total of $358 for selling these two items.

Write two equations with two variables to represent the information in this problem. Be sure to define your variables by writing let statements. Solve your system, then determine how many pizza slices were sold. Write a complete sentence!

$$P = 2B - 20 \qquad 2.50P + 3.00B = 358$$

They sold 51 Burritos and 82 pizza slices-

$$2.50(2B - 20) + 3B = 358$$
$$5B - 50 + 3B = 358$$
$$8B = 408 \quad B = 51$$

$$P = 2(51) - 20$$
$$P = 82$$

(____/15 pts)