

page 2.

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6. a) Sub  $(-2, 3)$  into  $y = 5x - 7$

$$3 = 5(-2) - 7$$

$$3 = -10 - 7$$

$$3 = -17$$

not true

$\therefore (-2, 3)$  is not on the line  $y = 5x - 7$

b)  $3x - 4y - 24 = 0$

$$3x - 4y = 24$$

$$-4y = -3x + 24$$

$$y = \frac{3}{4}x - 6$$

### Algebra

1.  $2(-3)^2 - 3(-3)^2(-5) - (-5)^3$

$$= 2(9) - 3(9)(-5) - (-125)$$

$$= 18 + 135 + 125$$

$$= 278$$

$$\begin{array}{r} 125 \\ + 135 \\ + 18 \\ \hline 278 \end{array}$$

2 a)  $-6x - 12$       b)  $-5x + y$

b)  $-2x^3 - 3x^2 - 9x - 6$       c)  $2x + y$

d)  $5(6x+7) = 30x + 35$

e)  $2x^2(x^2+6x-3) = 2x^4 + 12x^3 - 6x^2$

f)  $-2x+6-2(3x-5) = -2x+6-6x+10$   
 $= -8x+16$

g)  $3(4x-y+3)+2(5x-4y-7)$

l)  $(x^2)(x^4)(x) = x^7$

m)  $\frac{x^9}{x^3} = x^6$

n)  $\frac{x^3}{x^8} = \frac{1}{x^5} = x^{-5}$

o)  $\frac{14x^4}{7x} = 2x^3$

p)  $3x^3y(x^2y^2+4y-2) = 3x^5y^3 + 12x^3y^2 - 6x^3y$

q)  $\frac{12x^6y^2}{8x^4y^6} = \frac{3x^2}{2y^4}$

r)  $(m^4n)^3 = m^{12}n^3$

s)  $(4m^5n^2)^3 = 64m^{15}n^6$

## 3. Simplify fully.

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

b)  $\frac{18x-9}{9}$

c)  $\frac{(3x^4y^3)^2(-4xy^2)^3}{(2x^2y)^3}$

d)  $\frac{15x^6y^3 - 10x^5y^2 + 5x^2y}{5x^2y}$

Percents

Round-off all answers to the nearest tenth except dollar amounts.

- 8 out of 35 students scored very high on a recent test.  
What percentage of the class did not score high?
- 30% of a number gives you 40. What is that number?
- The overhead projector in the poster at this side of the room has retail price of \$ 450.00. It is on sale for two-thirds OFF. Taxes are 13%. Calculate the purchase price.
- An ipod has a retail price of \$ 560.00 is on sale for \$325.00. Calculate the discount rate to the nearest tenth of a percent.

Simplify Fully Page 3

$$3 a) 10x^4 - 15x^3 + 10x + 6x^3 - 8x^2$$

$$= 10x^4 - 9x^3 - 8x^2 + 10x$$

$$b) 2x - 1$$

$$c) \frac{(9x^8y^6)(-64x^3y^6)}{8x^6y^3} = \frac{-72x^{11}y^{12}}{x^6y^3}$$

$$= -72x^5y^9$$

$$d) \frac{15x^6y^3}{8x^2y} - \frac{10x^5y^2}{5x^2y} + \frac{5x^2y}{5x^2y}$$

$$= 3x^4y^2 - 2x^3y + 1$$

Percents

1.

If 8 out of 35 score high.  
27 out of 35 did not

$$\frac{27}{35} \times 100 = \frac{540}{7}$$

$$\approx 77.1\%$$

$$\begin{array}{r} 77.1 \\ 7 \overline{) 540} \\ \underline{49} \phantom{0} \\ 50 \\ \underline{49} \\ 10 \\ \underline{7} \\ 3 \end{array}$$

$\therefore 77\%$  did not score high.

Percents page 3

$$2) 0.30x = 40$$

$$\frac{30}{100}x = 40$$

$$x = 40 \times \frac{100}{30}$$

$$x = \frac{400}{3}$$

$$x = 133\frac{1}{3}$$

$$3) \frac{2}{3}(450) = 300$$

$\therefore$  The discount is \$300

$$450 - 300 = 150$$

$\therefore$  \$150 is the sale price.

$$150 \times 1.13 = 169.50$$

$\therefore$  the purchase price is \$169.50

$$4) 560 - 325 = 235$$

$$\% \text{ Disc} = \frac{235}{560} \times 100 = \frac{4700}{112}$$

$$= 42\%$$

$\therefore$  the Dis. Rate is 42%

$$\begin{array}{r} 133.\bar{3} \\ 3 \overline{) 400} \\ \underline{3} \phantom{0} \\ 10 \phantom{0} \\ \underline{9} \phantom{0} \\ 10 \phantom{0} \\ \underline{9} \phantom{0} \\ 1 \phantom{0} \end{array}$$

$$\begin{array}{r} 1.13 \\ 150 \\ \hline 5650 \\ 113 \\ \hline 169.50 \end{array}$$

$$\begin{array}{r} 560 \\ 325 \\ \hline 235 \end{array}$$

Solve the Equations

$$1. \quad 56 - 8y = -24$$

$$-8y = -80$$

$$y = 10$$

$$2. \quad -7 + 28m = 26m - 39$$

$$2m = -32$$

$$m = -16$$

$$3. \quad m = -\frac{50x}{3}$$

$$m = -70$$

$$4. \quad \frac{-55x}{35} + \frac{42x}{35} = \frac{1365}{35}$$

$$-13x = 1365$$

$$x = -105$$

$$5. \quad \frac{12(x+5)}{48} - \frac{3(3x+7)}{48} = \frac{4(5x-3)}{48}$$

$$12x + 60 - 9x - 27 = 20x - 12$$

$$3x + 33 = 20x - 12$$

$$45 = 17x$$

$$\frac{45}{17} = x$$

$$6. \quad \frac{6(x-3)}{30} + \frac{60}{30} = \frac{5(x+4)}{30}$$

$$6x - 18 + 60 = 5x + 20$$

$$6x + 42 = 5x + 20$$

$$x = -22$$

Word Problems

① Let  $n$  be the larger #

Let  $15-n$  be the smaller #

$$(15-n) + 3n = 33$$

$$15 + 2n = 33$$

$$2n = 18$$

$$n = 9$$

∴ the numbers are 9 and 6

② Let  $S$  be the cost of the stereo  
Let  $\frac{S}{2}$  be the cost of the DVD

Let  $S-25$  be the cost of the remote

$$S + \frac{S}{2} + (S-25) = 225$$

$$\frac{2S}{2} + \frac{S}{2} + \frac{2S-50}{2} = 450$$

$$5S - 50 = 450$$

$$5S = 500$$

$$S = 100$$

∴ the stereo cost \$100, the DVD \$50 and the remote \$75

3 Let the mass of the dog be  $d$   
Let the mass of the cat be  $28-d$

$$3(28-d) = d$$

$$84 - 3d = d$$

$$84 = 4d$$

$$d = 21$$

∴ the dog is 21 kg + the cat is 7 kg

## Wind Problems.

4. let  $b$  be the cost of the bottle  
 let  $1.10 - b$  be " " " " cork

$$(1.10 - b) + 1 = b.$$

$$2.10 - b = b.$$

$$2.10 = 2b$$

$$1.05 = b.$$

$\therefore$  the bottle is \$1.05 and the cork is \$.05

## Formula Rearranging.

$$1) \quad A = \frac{1}{2}bh. \quad 2) \quad \frac{P - 2L}{2} = W$$

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

$$3) \quad m = \frac{y - b}{x}$$