

Unit Test I

- I. 1)  $-(3 \times 3) = -9$   
 2)  $-2 + 9 - 4 = 3$   
 3)  $1 - 3 = -2$

- II. 1)  $5X - 2 = 4 - X$   
 $6X - 2 = 4$   
 $6X = 6$   
 $X = 1$

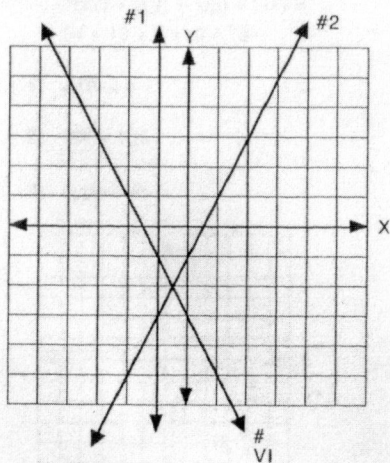
- 2)  $9B + 6 = 4$  (each term multiplied by 18)  
 $9B = -2$   
 $B = -2/9$

- 3)  $3Y + 100 = 430$  (each term multiplied by 100)  
 $3Y = 330$   
 $Y = 110$

III. B

- IV. 1) associative  
 2) distributive  
 2) commutative

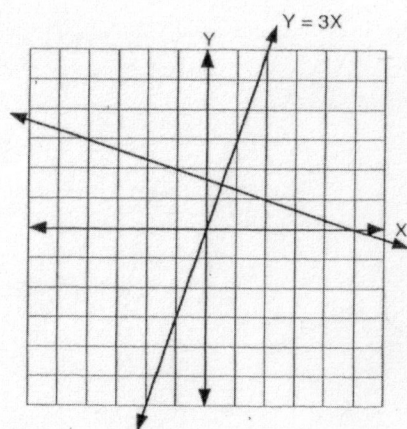
V. on the graph



- VI.  $Y = -2X - 3$ ,  $m = -2$ ,  $y$  intercept =  $-3$   
 see graph

VII.  $M = 3D - 2$

- VIII. 1) perpendicular slope is  $-1/3$   
 (1)  $= -1/3(2) + b$   
 $1 = -2/3 + b$   
 $5/3 = b$   
 $Y = -1/3 X + 5/3 \Rightarrow X + 3Y = 5$   
 see graph



IX.  $m = \frac{4 - 1}{0 - 2} = -\frac{3}{2}$

$(4) = -3/2(0) + b$   
 $4 = b$   
 $Y = -3/2 X + 4$  or  $3X + 2Y = 8$

- X. a, b, and d  
 a)  $m = 3$   
 b)  $m = 3$   
 c)  $m = -3$   
 d)  $m = 3$

Unit Test II

- I. 1)  $5^2 + 3 = 5^5$   
 2)  $-3 \cdot -3 \cdot -3 = -27$

3)  $2^{(2)(2)} = 2^4$  or  $1/16$   
 $4) 3^{10} - 2 = 3^8$   $(2-2)^3 = 2^{-6}$  or  $1/64$

5)  $A^{2+1}B^{3+4} = A^3B^7$

6)  $\frac{3X + 2}{X - 1}$   
 $\frac{-3X - 2}{-3X - 2}$   
 $\frac{3X^2 + 2X}{3X^2 - X - 2}$

II.  $.05N + .10D = 1.10$      $N + D = 16$

$5N + 10D = 110$   
 $-5N - 5D = -80$

$5D = 30$      $N + (6) = 16$   
 $D = 6$      $N = 10$

III. 1) using elimination

$2(2X - Y = -1) \Rightarrow 4X - 2Y = -2$   
 $2Y = 6$

$4X = 4$   
 $X = 1$   
 (1, 3)

2) using substitution

$(2X - 1) - 3 = X + 2$   
 $2X - 4 = X + 2$      $2(6) - 1 = Y$   
 $X = 6$      $11 = Y$   
 (6, 11)

IV.  $2(N) + 1 = N + 4$

$2N - N = 4 - 1$   
 $N = 3$     3, 5, 7

V. 1)  $2(X^2 + 14)$

2)  $2(X^2 + 4X + 3) = 2(X + 3)(X + 1)$

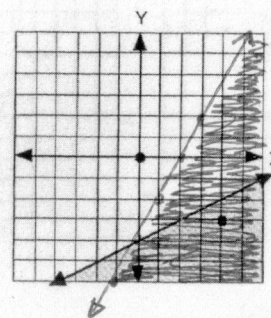
3)  $(3X + 4)(X + 5)$

VI.  $2Y \leq 4X - 8$

$Y = 2X - 4$

$2(0) \leq 4(0) - 8$   
 $0 \leq -8$  false

$2(-3) \leq 4(4) - 8$   
 $-6 \leq 8$  true



Unit Test III

I. 1)  $X + 2 \sqrt{\frac{2X^2 + 5X + 2}{(2X^2 + 4X)}} = \frac{2X + 1}{X + 2}$   
 $\frac{X + 2}{-(X + 2)} = \frac{2X^2 + X}{2X^2 + 5X + 2}$

2)  $X - 2 \sqrt{\frac{X^2 + 5X + 1}{X^3 + 3X^2 - 9X - 2}} = \frac{X^2 + 5X + 1}{X - 2}$   
 $\frac{X^2 + 5X + 1}{-(X^3 - 2X^2)} = \frac{-2X^2 - 10X - 2}{X^3 + 5X^2 + X}$   
 $\frac{5X^2 - 9X}{-(5X^2 - 10X)} = \frac{X - 2}{X - 2}$

II. 1)  $3(X^2 - 4) = 3(X - 2)(X + 2)$

2)  $(Q - R)(Q + R)$

3)  $2(X^2 - 2X - 15) = 2(X + 3)(X - 5)$

III. 1)  $X^2 + 5X + 6 = 0$      $(-2)^2 + 5(-2) + 6 = 0$   
 $(X + 2)(X + 3) = 0$      $4 - 10 + 6 = 0$   
 $X = -2, X = -3$      $0 = 0$   
 $(-3)^2 + 5(-3) + 6 = 0$   
 $9 - 15 + 6 = 0$   
 $0 = 0$

2)  $2X(X^2 - 9) = 0$      $2(0)^3 - 18(0) = 0$   
 $2X(X - 3)(X + 3) = 0$      $0 = 0$   
 $X = 0, X = 3, X = -3$      $2(3)^3 - 18(3) = 0$   
 $54 - 54 = 0$   
 $0 = 0$

$2(-3)^3 - 18(-3) = 0$   
 $-54 + 54 = 0$   
 $0 = 0$

IV. 1)  $\frac{100 \text{ oz}}{1} \times \frac{28 \text{ g}}{1 \text{ oz}} = 2,800 \text{ g}$

2)  $\frac{6 \text{ km}}{1} \times \frac{62 \text{ mi}}{1 \text{ km}} = 3.72 \text{ mi}$

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