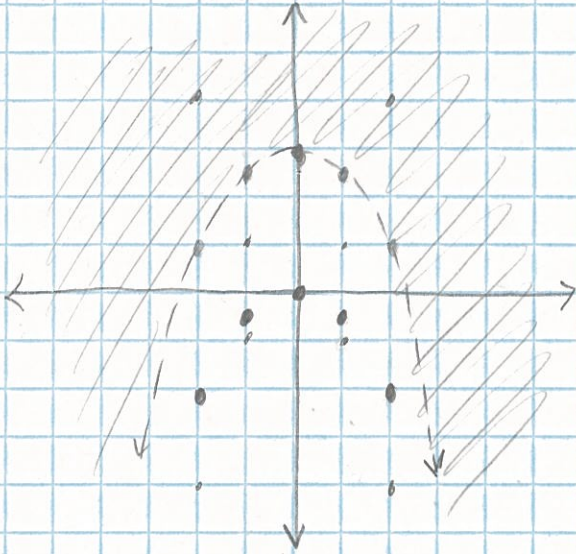


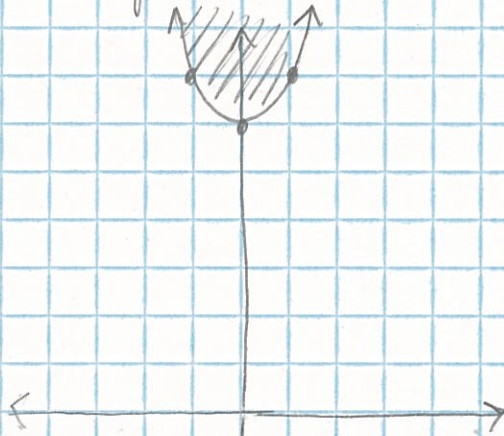
# HW Answers - Section 5.7 (Day 1)

p. 370, # 13-25 (odd), 35, 36, 48-51

13)  $y > -\frac{1}{2}x^2 + 3$



15)  $y \geq x^2 + 6$



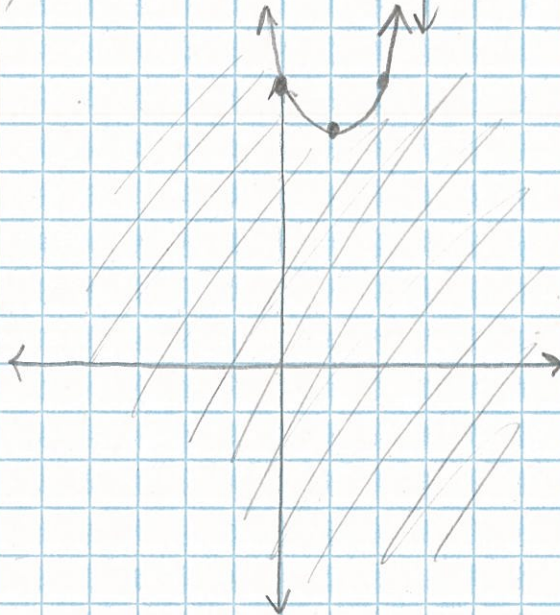
17)  $y \leq x^2 - 2x + 6$

$(0, 6)$

$x = \frac{2}{2} = 1$

$y = (1)^2 - 2(1) + 6$

$y = 1 - 2 + 6 = 5$   
 $(1, 5)$



19)  $2x^2 + 3x + 6 \geq 5$  pos.  
 $2x^2 + 3x + 1 \geq 0$   
 $(2x+1)(x+1) \geq 0$

$x = -\frac{1}{2}, x = -1$



$(-\infty, -1], [-1/2, \infty)$

21)  $x^2 - 2x - 8 > 0$  pos.  
 $(x-4)(x+2) > 0$

$x = 4, x = -2$



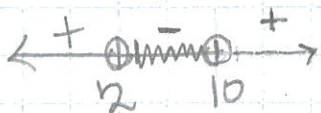
$(-\infty, -2), (4, \infty)$

$$23) \quad x^2 - 12x + 32 < 12$$

$$x^2 - 12x + 20 < 0$$

$$(x-10)(x-2) < 0 \quad \underline{\text{neg}}$$

$$x=10, x=2$$



$$(2, 10)$$

$$25) \quad -2x^2 + 3x + 4$$

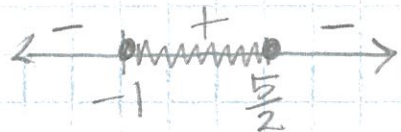
$$-2x^2 + 3x + 4 \geq -1$$

$$-2x^2 + 3x + 5 \geq 0 \quad \underline{\text{pos}}$$

$$-1(2x^2 - 3x - 5) \geq 0$$

$$-1(2x-5)(x+1) \geq 0$$

$$x = \frac{5}{2}, x = -1$$

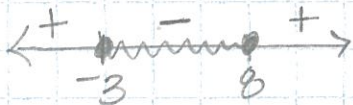


$$[-1, 5/2]$$

$$35) \quad x^2 - 5x - 24 \leq 0 \quad \underline{\text{neg}}$$

$$(x-8)(x+3) \leq 0$$

$$x=8, x=-3$$



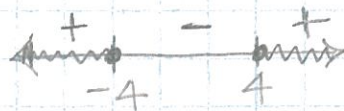
$$[-3, 8]$$

$$36) \quad x^2 - 14 \geq 2$$

$$x^2 - 16 \geq 0 \quad \underline{\text{pos}}$$

$$(x-4)(x+4) \geq 0$$

$$x=4, x=-4$$



$$(-\infty, -4], [4, \infty)$$

48) B

49) A

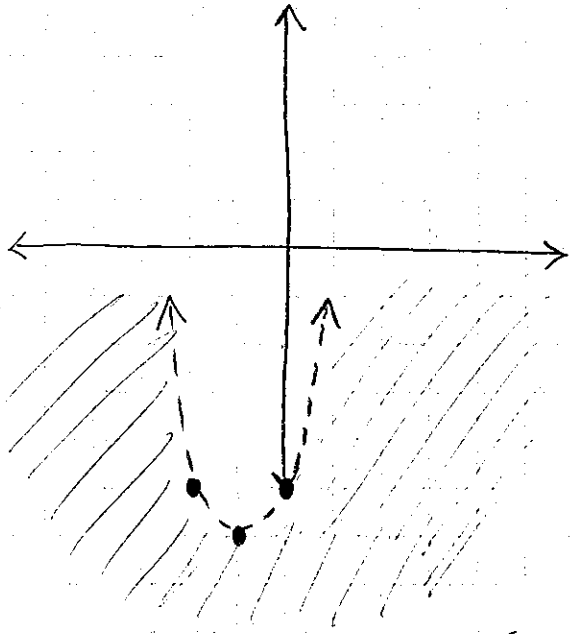
50) C

# HW Answers - Section 5.7 (Day 2)

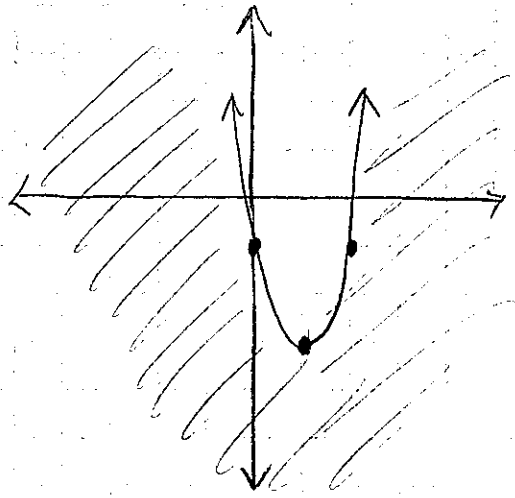
P. 370, # 12-24 (Even), 38, 40, 45  
P. 394, # 66-69

12)  $y < x^2 + 2x - 5$

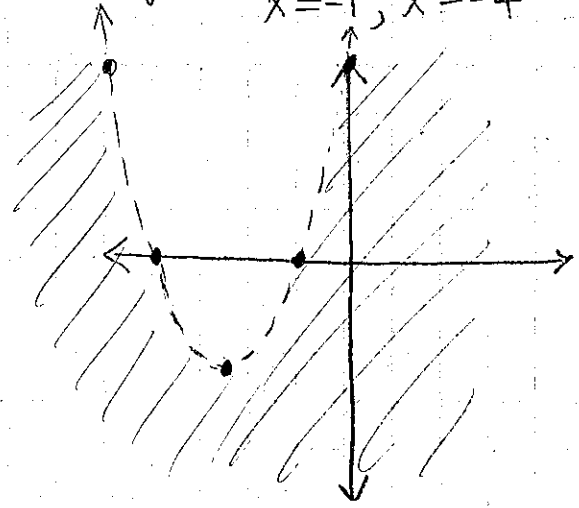
$(0, -5)$   
 $x = \frac{-2}{2(1)} = -1$   
 $y = (-1)^2 + 2(-1) - 5 = -6$   
 $(-1, -6)$



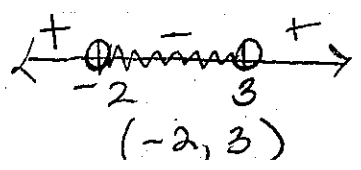
14)  $y \leq 2(x-1)^2 - 3$



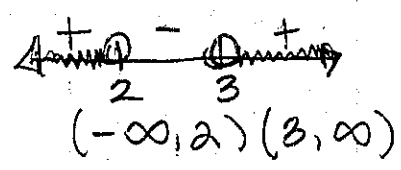
16)  $y < (x+1)(x+4)$   
 $x = -1, x = -4$   
 $x^2 + 5x + 4$   
 $x = \frac{-5}{2(1)}$   
 $x = -\frac{5}{2}$   
 $y = -2.25$



18)  $x^2 - x + 5 < 11$  — neg  
 $x^2 - x - 6 < 0$   
 $(x-3)(x+2) < 0$   
 $x = 3, x = -2$



20)  $x^2 - 5x + 12 > 6$   
 $x^2 - 5x + 6 > 0$  — pos  
 $(x-3)(x-2) > 0$   
 $x = 3, x = 2$

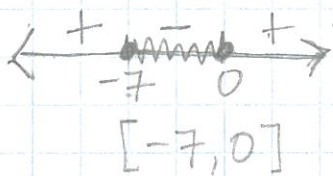


$$22) \quad X^2 + 7X + 6 \leq 6$$

$$X^2 + 7X \leq 0 \quad \underline{\text{neg}}$$

$$X(X+7) \leq 0$$

$$X=0, X=-7$$

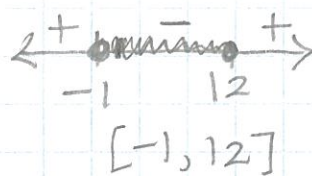


$$24) \quad X^2 - 11X + 13 \leq 25$$

$$X^2 - 11X - 12 \leq 0 \quad \underline{\text{neg}}$$

$$(X-12)(X+1) \leq 0$$

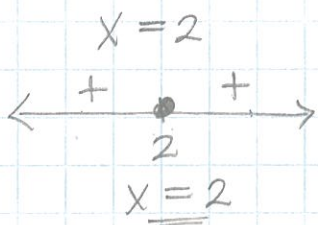
$$X=12, X=-1$$



$$38) \quad X^2 - 4X - 5 \leq -9$$

$$X^2 - 4X + 4 \leq 0 \quad \underline{\text{neg}}$$

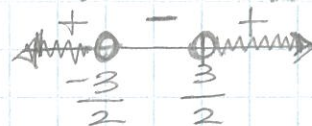
$$(X-2)(X-2) \leq 0$$



$$40) \quad 4X^2 - 9 > 0 \quad \underline{\text{pos}}$$

$$(2X-3)(2X+3) > 0$$

$$X = \frac{3}{2}, X = -\frac{3}{2}$$

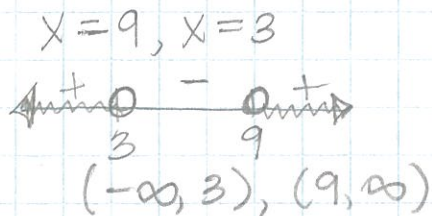


$$(-\infty, -3/2) \cup (3/2, \infty)$$

$$45) \quad X^2 + 27 > 12X \quad \underline{\text{pos}}$$

$$X^2 - 12X + 27 > 0$$

$$(X-9)(X-3) > 0$$



$$66) \quad X^2 + 2X - 4 \geq -1$$

$$X^2 + 2X - 3 \geq 0 \quad \underline{\text{pos}}$$

$$(X+3)(X-1) \geq 0$$

$$X=-3, X=1$$



$$(-\infty, -3], [1, \infty)$$

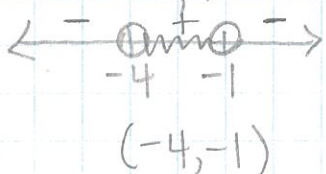
$$67) \quad -X^2 - 5X > 4$$

$$-X^2 - 5X - 4 > 0 \quad \underline{\text{pos}}$$

$$-1(X^2 + 5X + 4) > 0$$

$$-1(X+1)(X+4) > 0$$

$$X=-1, X=-4$$



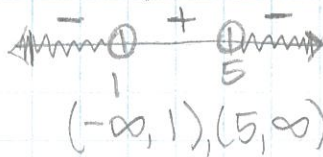
$$68) \quad -X^2 + 6X < 5$$

$$-X^2 + 6X - 5 < 0 \quad \underline{\text{neg}}$$

$$-1(X^2 - 6X + 5) < 0$$

$$-1(X-5)(X-1) < 0$$

$$X=5, X=1$$



$$69) \quad 3X^2 - 25 \leq 2 \quad \underline{\text{neg}}$$

$$3X^2 - 27 \leq 0$$

$$3(X^2 - 9) \leq 0$$

$$3(X-3)(X+3) \leq 0$$

$$X=3, X=-3$$

