

Assign 18

New (NO calc)

Book pg 278: 7-13 odd, 19-37 odd, 43, 45, 47

$$7. -15x^2 - 5x = \boxed{-5x(3x+1)}$$

$$9. x^2 + xy + 3x = \boxed{x(x+y+3)}$$

$$11. y^2 - 3y - 10 = \boxed{(y-5)(y+2)}$$

$\begin{matrix} s \cdot z = -10 \\ s+z = -3 \end{matrix}$

	4	-5
3	2	-10

$$13. 3h^2 - 48 = 3(h^2 - 16) = \boxed{3(h-4)(h+4)}$$

$$19. 10a^3b - 12a^2b^2 = \boxed{2a^2b(5a-6b)}$$

$$21. 16n^2 + 25m^2 \quad \boxed{\text{Prime}}$$

$$23. y^2 - 12y + 20 = \boxed{(y-10)(y-2)}$$

$\begin{matrix} -10 \cdot -2 = 20 \\ -10 + -2 = -12 \end{matrix}$

$$25. y^2 + 7y + 6 = \boxed{(y+6)(y+1)}$$

$$27. x^4 - y^2 = \boxed{(x^2-y)(x^2+y)}$$
 diff perfect \square 's

$$29. 3n^2 + 21n - 24 = 3(n^2 + 7n - 8) = \boxed{3(n-8)(n+1)}$$

$$31. 3a^2 - 27b^2 = 3(a^2 - 9b^2) = \boxed{3(a-3b)(a+3b)}$$

$$33. 5x - 14 + x^2 = x^2 + 5x - 14 = \boxed{(x+7)(x-2)}$$

$$35. 5x^2 + 15x - 10 = \boxed{5(x^2 + 3x - 2)}$$

$$37. 3a^2 + 24a + 45 = 3(a^2 + 8a + 15) = \boxed{3(a+5)(a+3)}$$

New cont
Book cont
43, 45, 47

Assign 18
cont

$$43. 81y^2 - 49 = (9y - 7)(9y + 7)$$

$$45. 2x^4 + 4x^3 + 2x^2 = 2x^2(x^2 + 2x + 1) = 2x^2(x+1)(x+1) \\ \text{or } 2x^2(x+1)^2$$

$$47. (y^4 - 16) = (y^2 - 4)(y^2 + 4) = (y - 2)(y + 2)(y^2 + 4)$$

Review (NO calc)

$$1. \text{Simplify: } 15 \div 3 \times 5 + 1 \\ = 5 * 5 + 1 \\ = 25 + 1 \\ = \boxed{26}$$

$$2. |3x| + 15 < 0 \\ \quad \quad \quad -15 \quad -15$$

$$|3x| < -15$$

NO solution (distance (pos #) can't be less than a neg!)

$$3. 4a^2(3b^3)(2a^2b) = (12a^2b^3)(2a^2b) = \boxed{24a^4b^4}$$

$$4. \frac{12m^8y^6}{-9my^4} = -\frac{4m^7y^2}{3} = \boxed{-\frac{4}{3}m^7y^2}$$

$$5. (4a^3c^2)^3(-3ac^4)^2 = (64a^9c^6)(9a^2c^8) = \boxed{576a^{11}c^{14}}$$

$$6. (3x^2y)(2xy^4) + (4xy^2)(3x^2y^3) = 6x^3y^5 + 12x^3y^5 = \boxed{18x^3y^5}$$

$$7. \frac{(3x^2y^3)(5xy^8)}{(x^3)^4y^{-2}} = \frac{15x^3y^{11}}{x^{12}y^{-2}} = \frac{15x^{12}y^2}{x^9y^5} = \boxed{\frac{15x^3y^7}{y^5}}$$

Review cont

$$8. (-3x^{-3}y^2)^{-4} = \frac{1}{(-3x^{-3}y^2)^4} \dots = \frac{1}{81x^{-12}y^8} = \boxed{\frac{x^{12}}{81y^8}}$$

$$9. \left(\frac{b}{2}\right)^{-4} = \left(\frac{2}{b}\right)^4 = \boxed{\frac{16}{b^4}}$$

$$10. \frac{(a^2b^{-3})^2(b^2)^0}{(a^{-2}b)^{-3}b^2} = \frac{a^4b^{-6}(a^2b)^3}{b^2} = \frac{a^4a^6b^3}{b^6b^2} = \frac{a^{10}b^3}{a^6b^8} = \boxed{\frac{1}{a^2b^5}}$$

$$11. \frac{(xm^{-1})^{-3}x^2m^2}{(x^0y^2)^{-2}xy} = \frac{x^{-3}m^3x^2m^2}{y^{-4}xy} = \frac{x^{-1}m^5}{y^{-3}x} = \frac{y^3m^5}{x^1x^1} = \boxed{\frac{y^3m^5}{x^2}}$$

You may use calculators to find vertices

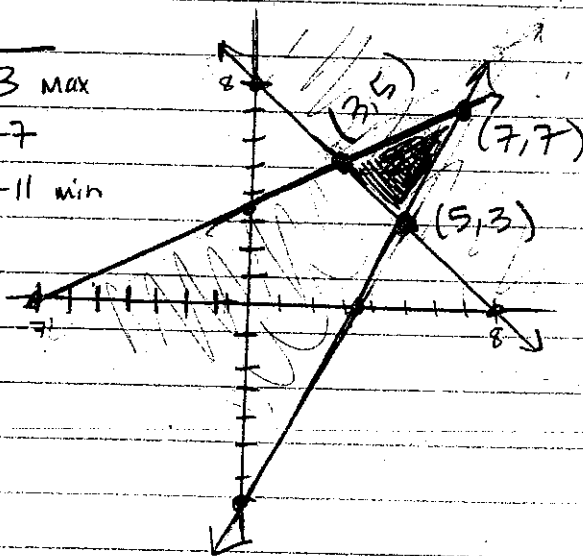
$$12. x - 2y \geq -7 \rightarrow x\text{-int: } (-7, 0) \quad y\text{-int: } (0, \frac{7}{2}) \rightarrow y \leq \frac{-7-x}{-2}$$

$$x + y \geq 8 \rightarrow x\text{-int: } (8, 0) \quad y\text{-int: } (0, 8) \rightarrow y \geq 8-x$$

$$2x - y \leq 7 \rightarrow x\text{-int: } (\frac{7}{2}, 0) \quad y\text{-int: } (0, 7) \rightarrow y \geq \frac{7-2x}{-1}$$

$$f(x,y) = 3x - 4y$$

(x,y)	3x-4y	f(x,y) =
(5,3)	3(5)-4(3)=3	f(5,3)=3 max
(7,7)	3(7)-4(7)=-7	f(7,7)=-7
(3,5)	3(3)-4(5)=-11	f(3,5)=-11 min



The max is 3 at (5,3)
The min is -11 at (3,5).

Review cont

3. $x =$ jar of tomato sauce (requires 10 tomatoes, 1 onion)
 $y =$ jar of salsa (requires 5 tomatoes, $\frac{1}{4}$ onion)

- 180 tomatoes to use
- 15 onions

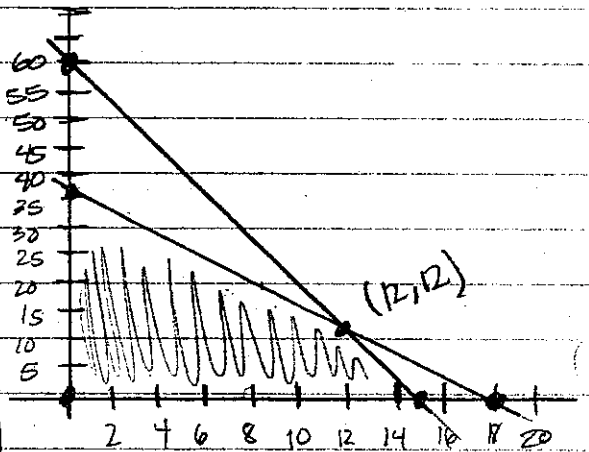
$$f(x,y) = 2x + 1.5y$$

$$x \geq 0 \quad y \geq 0$$

$$10x + 5y \leq 180 \rightarrow x\text{-int: } (18,0), y\text{-int: } (0,36) \rightarrow y \leq \frac{180-10x}{5}$$

$$1x + \frac{1}{4}y \leq 15 \rightarrow x\text{-int: } (15,0), y\text{-int: } (0,60) \rightarrow y \leq \frac{15-x}{\frac{1}{4}}$$

(x,y)	$2x + 1.5y$	$f(x,y) =$
$(0,0)$	$2(0) + 1.5(0) = 0$	$f(0,0) = 0$
$(15,0)$	$2(15) + 1.5(0) = 30$	$f(15,0) = 30$
$(0,36)$	$2(0) + 1.5(36) = 54$	$f(0,36) = 54$
$(12,12)$	$2(12) + 1.5(12) = 42$	$f(12,12) = 42$



To get a max profit of \$54, then you should make 0 jars of tomato sauce and 36 jars of salsa.

4.

	Plant A (x)	Plant B (y)	
Exp labor	10 hrs	1 hr	≤ 4000
Mch. time	1 hr	3 hrs	≤ 1500
Tech labor	5 hrs	2 hrs	≤ 2300

$$f(x,y) = 60x + 50y$$

$$x \geq 0$$

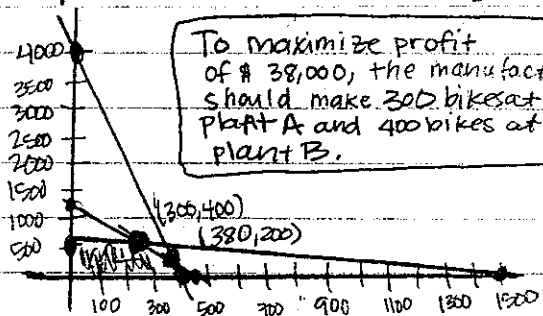
$$y \geq 0$$

$$10x + y \leq 4000 \rightarrow x\text{-int: } (400,0), y\text{-int: } (0,4000) \rightarrow y \leq 4000 - 10x$$

$$1x + 3y \leq 1500 \rightarrow x\text{-int: } (1500,0), y\text{-int: } (0,500) \rightarrow y \leq \frac{1500-x}{3}$$

$$5x + 2y \leq 2300 \rightarrow x\text{-int: } (460,0), y\text{-int: } (0,1150) \rightarrow y \leq \frac{2300-5x}{2}$$

(x,y)	$60x + 50y$	$f(x,y) =$
$(0,0)$	$60(0) + 50(0) = 0$	$f(0,0) = 0$
$(400,0)$	$60(400) + 50(0) = 24000$	$f(400,0) = 24000$
$(0,500)$	$60(0) + 50(500) = 25000$	$f(0,500) = 25000$
$(300,400)$	$60(300) + 50(400) = 38000$	$f(300,400) = 38000$
$(380,200)$	$60(380) + 50(200) = 32800$	$f(380,200) = 32800$



To maximize profit of \$38,000, the manufacturer should make 300 bikes at Plant A and 400 bikes at Plant B.

Assign 18
cont

Review cont
Book

Pg 264: 18, 20, 22, 28, 54 (no calc)

18. $x^2 + 2x + 3$ yes, polynomial; degree = 2

20. $\sqrt{85}$ no, not polynomial, $\sqrt{\quad}$ - not monomials

22. $\frac{4ab}{c} - \frac{2d}{x}$ no, not monomials. variables not in den.

28. $(10x^2 - 3xy + 4y^2) - (3x^2 + 5xy) = 10x^2 - 3xy + 4y^2 - 3x^2 - 5xy$
 $= \boxed{7x^2 - 8xy + 4y^2}$

54. $(3y+1)(3y-1)(y+2)$
 $= (9y^2 - 3y + 3y - 1)(y+2)$
 $= (9y^2 - 1)(y+2)$
 $= \boxed{9y^3 + 18y^2 - y - 2}$

