D 1. $a^2 - b^2$

N 2. $a^3 - b^3$

G 3. $a^3 + b^3$

I 4. $a^2 + 2ab + b^2$

A 5. $a^2 - 2ab + b^2$

L 6. $x^m x^n$

P 7. $(x^m)^n$

K 8. $\frac{x^m}{x^n}$

E 9. x^0

F 10. x^{-n}

A. $(a-b)^2$

B. $(a-b)(a^2+2ab+b^2)$

C. x^{n-m}

D. $(a-b)(a+b)$

E. 1

F. $\frac{1}{x^n}$

G. $(a+b)(a^2-ab+b^2)$

H. 0

I. $(a+b)^2$

J. $(a+b)(a^2-2ab+b^2)$

K. x^{m-n}

L. x^{m+n}

M. $(a-b)^3$

N. $(a-b)(a^2+ab+b^2)$

O. $(a+b)^3$

P. x^{mn}

5.7

45. $(3-x)^2 + x^2 = 5$

$(3-x)(3-x)$

$9 - 6x + x^2 + x^2 - 5 = 0$

$2x^2 - 6x + 4 = 0$

$\frac{2(x^2-3x+2)}{2} = \frac{0}{2}$

$x^2 - 3x + 2 = 0$

$(x-2)(x-1) = 0$

$x-2=0 \quad x-1=0$

$x = 2, 1$

61. $x, x+1$

8, 9

$x^2 + (x+1)^2 = 145$

$x^2 + x^2 + 2x + 1 - 145 = 0$

$2x^2 + 2x - 144 = 0$

$\frac{2(x^2 + x - 72)}{2} = \frac{0}{2}$

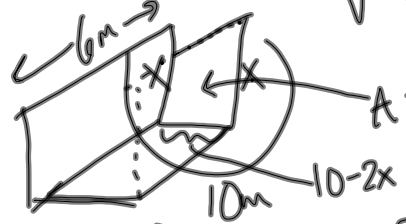
$x^2 + x - 72 = 0$

$(x+9)(x-8) = 0$

$x+9=0 \quad x-8=0$

$x = -9 \quad x = 8$

67.



$V = 72\ m^3$

$A = x(10-2x)$

$2(10-4)\cdot 6 = 72$

$3(10-6)\cdot 6 = 72$

$V = 6[x(10-2x)]$

$72 = 6x(10-2x)$

$0 = 60x - 12x^2 - 72$

$12x^2 - 60x + 72 = 0$

$\frac{12(x^2 - 5x + 6)}{12} = \frac{0}{12}$

$x^2 - 5x + 6 = 0$

$(x-2)(x-3) = 0$

$x = 2, 3$

65.

$A = \ell w$

$\ell = 5 + 2w$

$168 = (5 + 2w)w$

Old Test #3

11. $\begin{cases} 3x + y = 7 \\ x + 2y = 4 \end{cases}$ $\rightarrow$ $y = -3x + 7$

$x + 2(-3x + 7) = 4$

$y = -3(2) + 7$

$= -6 + 7$

$y = 1$

$x - 6x + 14 = 4$

$-5x = -10$

$x = 2$

$(2, 1)$

12. Simplify.

$$\left(\frac{x^{-3}y^{-4}}{x^{-2}y}\right)^{-2} = \frac{x^{6}y^{8}}{x^{4}y^{-2}} = \frac{x^{6-4}y^{8-(-2)}}{1} = x^{2}y^{10}$$

$$\frac{x^{6}}{x^{4}} = \frac{1}{x^{4-6}} = \frac{1}{x^{2}}$$

13. write in scientific notation

$9{,}800{,}000{,}000 = 9.8 \times 10^{9}$

$0.\underbrace{0000072}_{5} = 7.2 \times 10^{-5}$

14. $f(x) = -7x + 12x^{4} - 5x^{2} + 3x - 9$

lead term: $-7x^{5}$

leading coefficient: -7

degree: 5

constant term: -9

15. $P(x) = -3x^2 - 2x + 8$

$P(-1) = -3(-1)^2 - 2(-1) + 8$

$= -3 + 2 + 8$

$= 7$

$P(-1) = \boxed{7}$

$$\begin{array}{r|rrr} -1 & -3 & -2 & 8 \\ & & 3 & -1 \\ \hline & -3 & 1 & \boxed{7} \end{array}$$

16. Multiply & simplify.

$(2b^2 - 3)(3b^2 - 3b + 6)$

$6b^4 - 6b^3 + 12b^2 - 9b^2 + 9b - 18$

$\boxed{6b^4 - 6b^3 + 3b^2 + 9b - 18}$

17. divide.

$(x^3-6x^2+11x-6)\div(x-3)$

3	1	-6	11	-6
	3	-9	6
1	-3	2	0

Remainder: 0

Quotient: x^2-3x+2

$$x-3\overline{)\,x^3-6x^2+11x-6}$$

x^2-3x+2

$-(x^3-3x^2)$

$-3x^2+11x-6$

$-(-3x^2+9x)$

$2x-6$

$-(2x-6)$

0

18. factor completely.

$6x^4-10x^3-4x^2$

$2x^2(3x^2-5x-2)$

$2x^2[3x^2-6x+x-2]$

$2x^2[3x(x-2)+1(x-2)]$

$2x^2(x-2)(3x+1)$

19. factor.

$3b^5 - 24b^2$

$3b^2(b^3 - 8)$

$b^3 - 2^3$

$3b^2(b-2)(b^2+2b+4)$

$a^3 - b^3 = (a-b)(a^2+ab+b^2)$

20. Solve for x.

$(x+5)(x-7) = -20$

$x^2 - 7x + 5x - 35 + 20 = 0$

$x^2 - 2x - 15 = 0$

$(x-5)(x+3) = 0$

$x-5=0 \quad x+3=0$

$x = 5, -3$

HW:
Ch 5 Review
pp 320-322