

## College Algebra - Even Answers

### Problem Set 111

2]  $\frac{1}{4}$       4]  $\frac{ft}{t-2} \frac{ft}{hr}$       6]  ${}_8P_6 = 20,160; {}_8C_6 = 28$       8]  $3 < x < 3\frac{1}{8}$       10]  $\frac{431}{99,900}$

12]  $\frac{(x+1)^2}{9} + \frac{(y-2)^2}{25} = 1$ ; center:  $(-1, 2)$ ; major: 10; minor: 6; GRAPH      14] 0

16]  $5.65 \times 10^{-6}$       18]  $\pm 2$       20]  $e^e$       22] PROOF      24] 16.93 cm      26] GRAPH

28]  $0, \frac{\pi}{2}, \pi, \frac{3\pi}{2}$       30]  $(x+3)\left(x + \frac{3}{2} + \frac{3\sqrt{3}}{2}i\right)\left(x + \frac{3}{2} - \frac{3\sqrt{3}}{2}i\right)$

### Problem Set 113

2] 18.51 yr      4]  $\frac{(k)(r)(2.54)(60)(60) \frac{m}{hr}}{100}$       6]  $x^2 - 3x - 6$       8] Yes      10] Yes

12]  $-13,608x^{15}y^6$       14]  $x > -\frac{4}{9}$       16]  $\frac{13}{990}$       18] 1      20]  $-\frac{1}{4}$       22] PROOF

24] GRAPH      26]  $1; \frac{1}{2} + \frac{\sqrt{3}}{2}i; -\frac{1}{2} + \frac{\sqrt{3}}{2}i; -1; -\frac{1}{2} - \frac{\sqrt{3}}{2}i; \frac{1}{2} - \frac{\sqrt{3}}{2}i$       28] GRAPH

30]  $(x+i)(x+i)(x-i)(x-i)$

### Problem Set 114

2] 99      4] 132 pages      6] GRAPH      8] A

10]  $3x^4 + 6x^3 + 10x^2 + 20x + 20$       12] Yes      14]  $x > \frac{101}{100}$

16]  $\frac{(x-1)^2}{4} + \frac{(y-2)^2}{16} = 1$ ; center:(1,2); major:8; minor:4; GRAPH      18] 2      20]  $\frac{\sqrt{2}}{2}$

22] PROOF      24] GRAPH      26] a)  $3.98 \times 10^{-8}$  b) 6.11      28] 8 and 12

30]  $x(x-5)\left(x + \frac{5}{2} + \frac{5\sqrt{3}}{2}i\right)\left(x + \frac{5}{2} - \frac{5\sqrt{3}}{2}i\right)$

### Problem Set 115

2]  $\frac{mk}{m-pk}$  mph      4]  $N_R = 10; N_W = 2; N_p = 7$       6]  $f(-2) = -50$       8] No      10] GRAPH

12] A      14]  $\frac{2}{3} < x < \frac{7}{9}$       16]  $\frac{3}{4}$       18]  $\frac{1}{2}\ln(x+1) + \frac{3}{4}\ln(y-2) - \ln x - \ln(y+2)$

20]  $\frac{\sqrt{6}-\sqrt{2}}{4}$       22] 1, 16      24]  $A = 36^\circ$ ; area = 35.15 yd<sup>2</sup>      26] GRAPH

28] 22.5°, 112.5°, 202.5°, 292.5°      30]  $x = 2; y = -1$

### Problem Set 117

2]  $\frac{2}{9}$       4]  $\frac{20m}{k}$  hr      6] Yes      8]  $\pm 1, \pm 5, \pm \frac{1}{2}, \pm \frac{5}{2}$       10]  $r = 4$ ; GRAPH

12] GRAPH      14] B      16] -4      18]  $x > \frac{17}{3}$       20] GRAPH

22]  $\frac{1}{3}\log_2 y + 3\log_2(x+1) - \frac{1}{2}\log_2(y+2)$

24]  $\frac{(x+1)^2}{4} + \frac{(y-2)^2}{5} = 1$ ; center:(-1,2); major: $2\sqrt{5}$ ; minor:4; GRAPH

26] 3 and 75      28] PROOF      30]  $\left(x + \frac{1}{2} + \frac{\sqrt{7}}{2}i\right)\left(x + \frac{1}{2} - \frac{\sqrt{7}}{2}i\right)$

### Problem Set 118

2] 47.75 yr    4]  $\frac{12}{11}$  hr    6] -3, 2    8]  $-1, \frac{1}{2}, \frac{3}{2}$     10]  $\pm 1, \pm 2, \pm 3, \pm 6, \pm \frac{1}{2}, \pm \frac{3}{2}, \pm \frac{1}{4}, \pm \frac{3}{4}$

12]  $r = 2$ ; GRAPH    14]  $y = (x-2)(x-3)(x+3)$ ; GRAPH    16] -1

18]  $x^{15} - 5x^{12}y^2 + 10x^9y^4 - 10x^6y^6 + 5x^3y^8 - y^{10}$     20]  $\frac{127}{300}$     22]  $\begin{bmatrix} 12 & 6 \\ 4 & 2 \\ 8 & 4 \end{bmatrix}$     24]  $672x^8$

26]  $2^{16}$       28] PROOF      30]  $\frac{7\pi}{6}, \frac{11\pi}{6}$

### Problem Set 119

2]  $\frac{7}{13}$       4]  $R_c = 40$  mph;  $T_c = 6$  hr;  $R_w = 20$  mph;  $T_w = 8$  hr      6] 1 or 3      8] 0, 2, or 4

10] upper bound = 2; lower bound = -4    12] -2, -1, 1    14]  $2+i, 2-i$

16]  $\pm 1, \pm 3, \pm \frac{1}{2}, \pm \frac{3}{2}, \pm \frac{1}{4}, \pm \frac{3}{4}, \pm \frac{1}{8}, \pm \frac{3}{8}$     18]  $r = 3$ ; GRAPH    20] GRAPH    22] -26

24]  $1, e^{\frac{1}{2}}$       26] PROOF      28]  $x > 102$       30]  $\frac{\log 72}{\log 6}$