Chapter P

2) Endpoint: 2
unbounded

4) $2x^3 + 4x^2 \rightarrow 2x^2(x+2)$

6) $3^{-2}x^{-4}y^{-6} = \frac{1}{9x^4y^6}$

8) 7.0×10^{-6}

14) a) $\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$

$\sqrt{(-9)^2+(4)^2}$

$\sqrt{81+16} = \sqrt{97}$

b) $\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

$\left(\frac{1}{2}, 1\right)$

18) $(x-5)^2+(y+3)^2 = 4^2$

$(x-5)^2+(y+3)^2 = 16$

20) center $(0,0)$

$r = 1$

eqn for circle $(x-h)^2+(y-k)^2 = r^2$ center (h,k)

24) $m = \frac{y_2-y_1}{x_2-x_1} = \frac{-5+2}{4+1} = \boxed{\frac{-3}{5}}$

25) $y-y_1 = m(x-x_1)$

$\boxed{y+1 = \frac{-3}{5}(x-2)}$

28) $m = \frac{2+4}{3+1} = \frac{6}{4} = \frac{3}{2}$

$y = mx+b$

$2 = \frac{3}{2}\cdot 3 + b$

$\frac{4}{2}2 = \frac{9}{2} + b$

$-\frac{9}{2} =$

$-\frac{5}{2} = b$

$\boxed{y = \frac{3}{2}x - \frac{5}{2}}$

30) $3x-4y = 7$

$-4y = -3x+7$

$\boxed{y = \frac{3}{4}x - \frac{7}{4}}$

32) $\perp$ $2x+5y=3$ $\perp$ lines have opp. rec. slopes

$5y = -2x+3$

$y = \frac{-2}{5}x + \frac{3}{5}$ $m_\perp = \frac{5}{2}$

$-3 = \frac{5}{2}\cdot 2 + b$

$-3 = 5+b$

$-8 = b$

$\boxed{y = \frac{5}{2}x - 8}$

34) Line $4x - 3y = 5$

$-3y = -4x + 5$

$y = \frac{4}{3}x - \frac{5}{3}$

a) $m_{\parallel} = \frac{4}{3}$

$y = \frac{4}{3}x + b \quad (-6, 3)$

$3 = \frac{4}{3} \cdot -6 + b$

$3 = -8 + b$

$11 = b$

Parallel lines have same slope

$\boxed{y = \frac{4}{3}x + 11}$

b) $m_{\perp} = -\frac{3}{4}$

$3 = -\frac{3}{4} \cdot -6 + b$

$\frac{6}{2}\,3 = \frac{18}{4} \frac{9}{2} + b$

$-\frac{9}{2} = -\frac{9}{2}$

$-\frac{3}{2} = b$

$\boxed{y = \frac{-3}{4}x - \frac{3}{2}}$

38) $\left(\frac{x-2}{3} + \frac{x+5}{2} = \frac{1}{3}\right) 6$

$2(x-2) + 3(x+5) = 2$

$2x - 4 + 3x + 15 = 2$

$5x + 11 = 2$

$5x = -9$

$\boxed{x = -\frac{9}{5}}$

42) $x = \frac{-24 \pm \sqrt{(-24)^2 - 4(16)(7)}}{2(16)}$

$\frac{24 \pm \sqrt{128}}{32} = 8\sqrt{2}$

$\frac{24}{32} \pm \frac{8\sqrt{2}}{32}$

$\boxed{\frac{3}{4} \pm \frac{\sqrt{2}}{4}}$

44) $2x^2 + 8x = 0$

$2x(x+4) = 0$

$\boxed{x = 0 \quad x = -4}$

60) $5x + 1 \geq 2x - 4$

$3x \geq -5$

$x \geq -\frac{5}{3}$

$\left[-\frac{5}{3}, \infty\right)$

$\sqrt{-1} = i$ $\quad i^2 = -1$

74) $(5-7i) - (3-2i)$

distribute negative then combine

$5 - 7i - 3 + 2i$

$\boxed{2-5i}$

75) $(1+2i)(3-2i)$ FOIL

$3 - 2i + 6i - 4i^2$

$+4$

$\boxed{7+4i}$

80) $\frac{(2+3i)}{(1-5i)} \frac{(1+5i)}{(1+5i)}$ · multiply N & D by conjugate of D.

· FOIL N & D

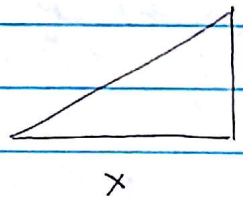
$\frac{2+10i+3i+15i^2}{}$ · Simplify

$1 - 25i^2$

$\frac{2+13i-15}{1+25} = \frac{-13+13i}{26} = \boxed{\frac{-1+i}{2}}$ $\quad -\frac{1}{2} + \frac{1}{2}i$

82)

$m = \frac{4}{9}$



$\frac{4}{9} = \frac{20000}{x}$

$4x = 180000$

$\boxed{x = 45{,}000 \text{ ft}}$