Chapter 6

40.(page 376) 8
41.(page 376) 0
46.(page 390) $\cos\theta = \frac{-12}{13}$, $\tan\theta = \frac{5}{12}$, $\cot\theta = \frac{12}{5}$, $\sec\theta = \frac{-13}{12}$, $\csc\theta = \frac{-13}{5}$.
52.(page 405) Domain $(-\infty, \infty)$. Range [-1,5].

Chapter 7

37.(page 446) $\frac{4\pi}{5}$
39.(page 446) $\frac{-3\pi}{8}$
51.(page 470)

$$\begin{aligned} \frac{1}{1-\cot\theta} &= \frac{1}{1-\frac{\cos\theta}{\sin\theta}} \quad \text{(definition of cotangent)} \\ &= \frac{\sin\theta}{\sin\theta - \cos\theta} \quad \text{(multiplying by } \sin\theta \text{ the numerator and denominator)} \end{aligned}$$

20.(page 481)$-2-\sqrt{3}$

Chapter 8

68.(page 515) No; move tripod back about 1 foot.
39.(page 525) 1490.48 ft
50.(page 533) 501.28ft ; 518.38ft

Chapter 11

61.(page 725) $x = \frac{1}{3}$, $y = \frac{2}{3}$, $z = 1$
67.(page 725)$x = 2$, $y = z - 3$, z is any real number.
37.(page 767) $(\sqrt{2}, 2\sqrt{2})$ and $(-\sqrt{2}, -2\sqrt{2})$.

$$\cos^2 x + \sin^2 x = 1 \qquad \sin(-\theta) = -\sin\theta \qquad \cos(-\theta) = \cos\theta$$

$$\cos(\alpha+\beta) = \cos\alpha\cos\beta - \sin\alpha\sin\beta \qquad \cos(\alpha-\beta) = \cos\alpha\cos\beta + \sin\alpha\sin\beta$$

$$\sin(\alpha+\beta) = \sin\alpha\cos\beta + \sin\beta\cos\alpha \qquad \sin(\alpha-\beta) = \sin\alpha\cos\beta - \sin\beta\cos\alpha$$

$$\sin(2\theta) = 2\sin\theta\cos\theta \qquad \sin^2\theta = \frac{1-\cos(2\theta)}{2} \qquad \cos^2\theta = \frac{1+\cos(2\theta)}{2}$$

For the complex numbers $z_1 = r_1(\cos\theta_1 + i\sin\theta_1)$ and $z_2 = r_2(\cos\theta_2 + i\sin\theta_2)$,

$$z_1 z_2 = r_1 r_2(\cos(\theta_1+\theta_2) + i\sin(\theta_1+\theta_2))$$

For the complex number $= r(\cos\theta + i\sin\theta)$, $z^n = r^n(\cos(n\theta) + i\sin(n\theta))$

Ellipse with major axis parallel to x-axis; $\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1, a > b > 0, b^2 = a^2 - c^2$

Ellipse with major axis parallel to y-axis; $\frac{(x-h)^2}{b^2} + \frac{(y-k)^2}{a^2} = 1, a > b > 0, b^2 = a^2 - c^2$

Hyperbola with major axis parallel to x-axis; $\frac{(x-h)^2}{a^2} - \frac{(y-k)^2}{b^2} = 1, b^2 = c^2 - a^2$

Hyperbola with major axis parallel to y-axis; $\frac{(y-k)^2}{a^2} - \frac{(x-h)^2}{b^2} = 1, b^2 = c^2 - a^2$

Geometric series: $\sum_{k=1}^{n} a_1 r^{k-1} = \frac{a_1(1-r^n)}{1-r}$, *and if* $|r| < 1$, $\sum_{k=1}^{\infty} a_1 r^{k-1} = \frac{a_1}{1-r}$