

Chapter 7B

1. a. $(2x-1)(x-7)$ b. $4x^2(x-4)$ c. $2(2x-3)(x+4)$ d. $(3x+5)(x-2)$

2. a. $-2x^3 + 4x^2 + 38x - 40$ b. $2x^3 + 15x^2 + 10x$

3. a. $x = 1, \pm i\sqrt{7}$ b. $x = 2, -2, 2i, -2i$ c. $x = 0, \frac{1}{3}, 5$

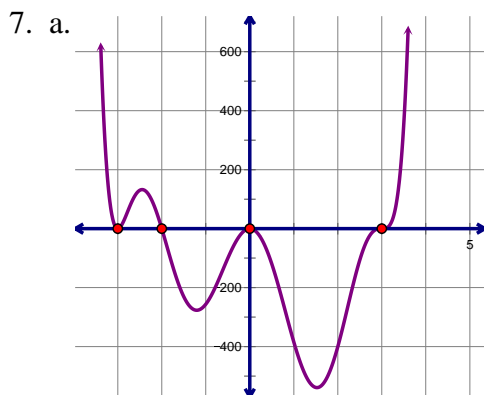
4. a. $(x-2)(x+5)(x+7)$ b. Yes c. $x^2 + 2x - 11 - \frac{18}{x-3}$

5. a. $f(x) = \frac{2}{3}x(x-1)^3(x+2)^2$ b. $g(x) = -5(x+2)(x-7)(x-10)$

6. a. i – B ii – D iii – A iv – C

b. $f(x)$ LC: -6 x -ints: $(0,0), (\frac{1}{2},0), (4,0), (\frac{5}{3},0)$ y -int: $(0,0)$

$g(x)$ LC: -1 x -ints: $(4,0), (-10,0), (5,0)$ y -int: $(0, 128,000)$



8. a. $x = 2 \pm 4i$ b. $x = -2 \pm i$

9. a. V: $(-1, -19)$; $x = -1 \pm \frac{\sqrt{19}}{2}$ b. V: $(-3, -48)$; $x = -7, x = 1$

10. $w^6 - 6w^5z + 15w^4z^2 - 20w^3z^3 + 15w^2z^4 - 6wz^5 + z^6$

11. $16x^4 + 96x^3y + 216x^2y^2 + 216xy^3 + 81y^4$

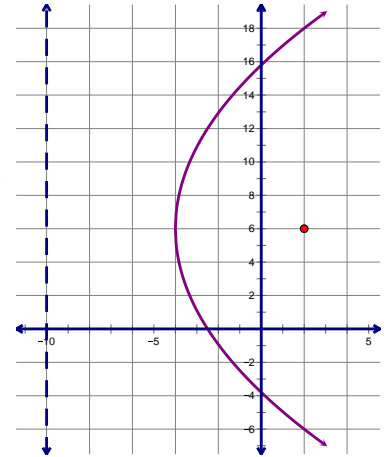
Chapter 8

1. 26 games 2. 6 ounces 3. a. $\frac{x^3}{2(x+2)}$ b. $\frac{x^2+11x+37}{x+6}$ c. $\frac{3(x+4)}{(x+3)(3x-4)}$ d. $\frac{25}{x(x-1)}$

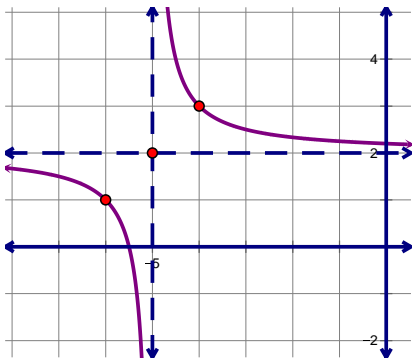
4. a. $\mathbb{R} \ x \neq -2, 5$ b. $\mathbb{R} \ x \neq -\frac{5}{2}, 3$ c. $\mathbb{R} \ x \neq -3, -2, 1$ d. $\mathbb{R} \ x \neq -4, -3, -1, 1$

5. $f(x) = -\frac{5}{x+4} - 3$ 6. $g(x) = \frac{4}{(x-8)^2} + 6$ 7. -3 and 11

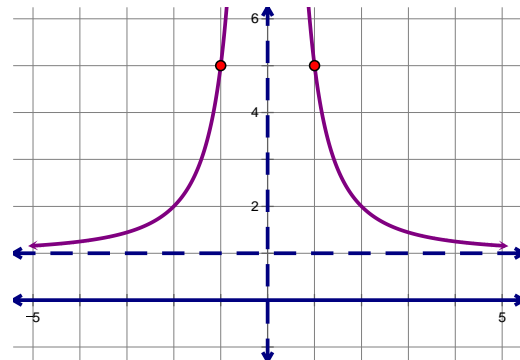
9. center $(4, -6)$, $r = 7$



10. a. D: $(-\infty, -5) \cup (-5, \infty)$ R: $(-\infty, 2) \cup (2, \infty)$
asymptotes: $x = -5$, $y = 2$



b. D: $(-\infty, 0) \cup (0, \infty)$ R: $(1, \infty)$
asymptotes: $x = 0$, $y = 1$



11. a. $f(x) = -\frac{3}{x-6} - 1$ b. $g(x) = -\frac{2}{(x+1)^2} + 3$

Chapter 9

1. a. 10 b. 25 c. 168 d. 310 e. 5 f. 10 g. $S_{11} = 121$ h. $S_{10} = 118,096$

2. a. $\sum_{n=1}^5 \frac{1}{3^{n+6}}$ b. $\sum_{n=1}^{20} (3+4(n-1))$ or $\sum_{n=1}^{20} (4n-1)$ c. $\sum_{n=1}^{12} 2(3)^{n-1}$

3. a. arithmetic $\sum_{n=1}^{40} (100-7(n-1))$ or $\sum_{n=1}^{40} (-7n+107)$ b. geometric $\sum_{n=1}^{17} 500\left(\frac{1}{5}\right)^{n-1}$

4. \$1023.50 5. \$33.00 6. a. $u_{17} = 11.964$ b. $S_{17} = 11,972.084$

7. \$573,994.04 8. 72 feet

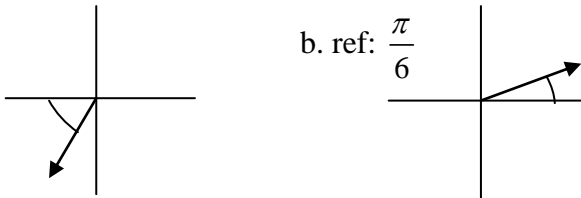
Chapter 11

1. 98 2. 2 to 8 and 8 to 14 3. a. 2.5% b. 81.5% 4. 97.35% 5. 0.15%
6. $z=3$ 7. $r=-1$ 8. $r=0$ 9. $r=0.8$ 10. $r=-0.4$ 11. $r=0.3$ 12. $r=-0.7$

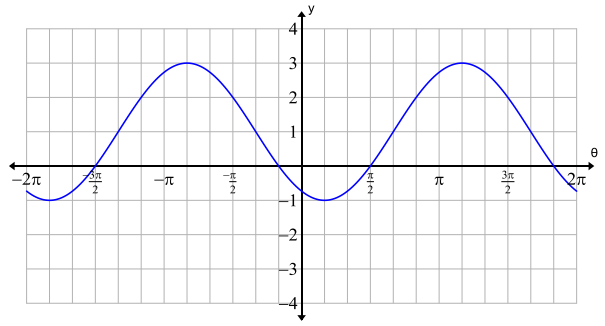
Chapter 12

1. $T=43^\circ$, $a=30.717$ ft, $t=28.644$ ft 2. a. $x=\frac{10\sqrt{3}}{3}$ cm, $y=\frac{20\sqrt{3}}{3}$ cm b. $x=3\sqrt{2}$ in, $y=3\sqrt{2}$ in
3. a. $A=20.05^\circ$, $B=121.01^\circ$, $C=38.94^\circ$ b. $a=11.82$, $b=24.921$, $C=142^\circ$
c. $x=4.94$, $B=38.702^\circ$, $C=110.298^\circ$
4. $x=583.35$ ft 5. $d=85.88$ ft 6. a. $\frac{12\sqrt{5}}{5}$ b. $\sqrt{5}$ c. $\frac{5\sqrt{21}}{9}$
7. a. $\frac{2\sqrt{7}}{8}$ b. 48.6° 8. $x=4\sqrt{5}$, $y=4\sqrt{15}$

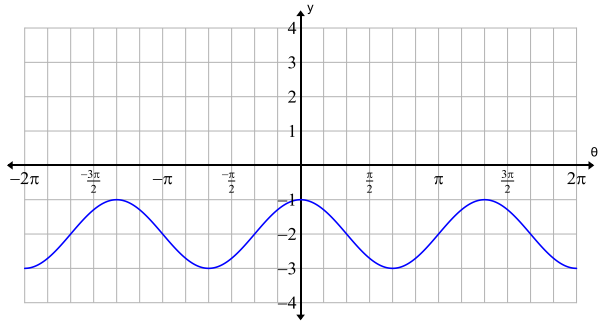
Chapter 13

1. a. 100° b. $\frac{2\pi}{5}$ 2. a. ref: $\frac{\pi}{3}$ b. ref: $\frac{\pi}{6}$
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3. $-600^\circ, 120^\circ$ 4. a. $\frac{\sqrt{2}}{2}$ b. $\frac{1}{2}$ c. $-\frac{1}{2}$ d. 0 e. $-\frac{\sqrt{3}}{2}$ f. $-\frac{1}{2}$
5. a. $\theta=135^\circ, 225^\circ$ b. $\theta=\frac{4\pi}{3}, \frac{5\pi}{3}$ c. $\theta=\frac{\pi}{2}, \frac{3\pi}{2}$ d. $\theta=210^\circ, 330^\circ$ e. $\theta=\frac{\pi}{6}, \frac{11\pi}{6}$ f. $\theta=270^\circ$
6. Amp: 3 Period: 6 Axis: $y=-1$
7. a. translated left $\frac{\pi}{6}$, down 1, horizontal dilation BAFO $\frac{1}{2}$ $f(\theta) = \cos\left(2\left(\theta + \frac{\pi}{6}\right)\right) - 1$
b. translated left $\frac{\pi}{4}$, up 1, vertical dilation BAFO $\frac{3}{2}$ $g(\theta) = \frac{3}{2}\sin\left(\theta + \frac{\pi}{4}\right) + 1$

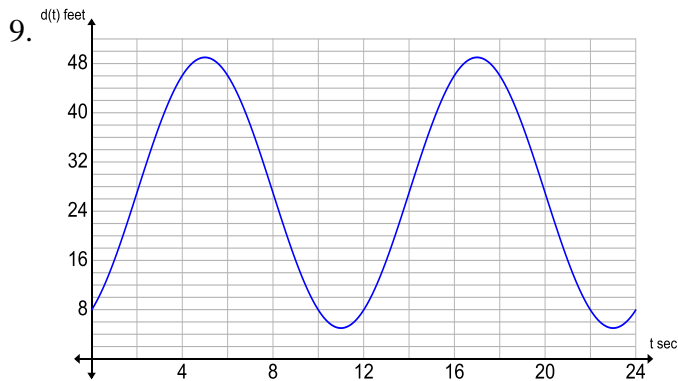
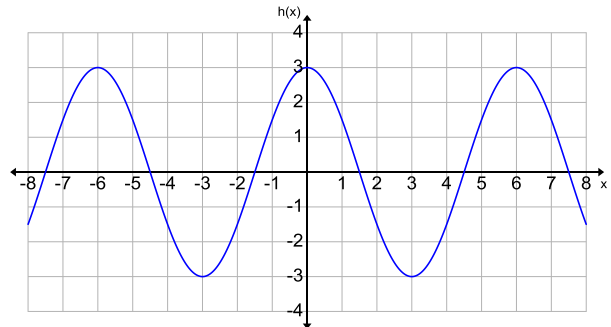
8. a. Amp: 2 Period: 2π Axis: $y=1$ P.S.: right $\frac{2\pi}{3}$



b. Amp: 2 Period: $\frac{4\pi}{3}$ Axis: $y=-2$ P.S.: none



c. Amp: 3 Period: 6 Axis: $y=0$ P.S.: none



b. lowest point: 5 ft highest point: 49 ft

c. 12 sec

10. $n(t) = 50 \cos\left(\frac{2\pi}{11}(t-5.5)\right) + 60$ or $n(t) = 50 \sin\left(\frac{2\pi}{11}(t-2.75)\right) + 60$