

9	10.5	9.6	15.7	41°	37°	102°
10	21.7	36.0	36.2	35°	72°	73°
11	7.6	3.4	9.4	49°	20°	111°
12	7.2	15.2	14.3	28°	83°	69°
13	9.1	12.5	15.8	35°	52°	93°
14	14.9	11.2	16.2	63°	42°	75°
15	2.0	0.7	2.5	38°	13°	129°
16	7.6	3.7	9.0	56°	24°	100°
17	18.5	9.8	24.1	45°	22°	113°
18	20.7	16.3	13.6	87°	52°	41°
19	14.6	22.4	29.9	28°	46°	106°
20	7.0	6.6	9.9	45°	42°	93°
21	21.8	20.8	23.8	58°	54°	68°
22	1.1	1.7	1.3	41°	89°	50°
23	1.2	1.2	0.4	85°	76°	19°
24	23.7	27.2	29.7	49°	60°	71°
25	3.4	4.6	5.2	40°	60°	80°

EXERCISE 9.5.5

1. (a) 10.14 km (b) 121°T 2. 7° 33' 3. 4.12 cm 4. 57.32 m 5. 315.5 m 6. (a) 124.3 km
(b) W28° 47' S

EXERCISE 9.5.6

1. 39.60m 52.84m 2. 30.2m 3. 54° 42', 84° 4. 37° 5. 028°T. 6. 108.1cm 7. (i) 135° (ii) 136cm
8. 41°, 56°, 83° 9. (i) 158° left (ii) 43.22km 10. 264m 11. 53.33cm 12. 186m 13. 50.12cm
14. 5.17cm 15. i. 5950m ii. 13340m iii. 160° iv. 243° 17. (a) 20.70° (b) 2.578 m (c) 1.995 m³
18. (a) 4243 m² (b) 86 m (c) 101 m

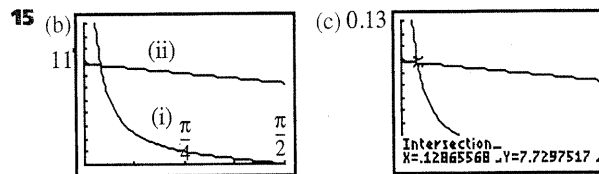
EXERCISE 9.6

1. 5.36 cm 2. 12.3 m 3. 24 m 4. 40.3 m, 48.2° 5. 16.5 min, 8.9° 6. ~10:49 am
7. (a) i. $\frac{d \sin \phi}{\sin(\phi - \theta)}$ ii. $\frac{d \sin \theta}{\sin(\phi - \theta)}$ (b) $\frac{d \sin \phi \tan \alpha}{\sin(\phi - \theta)}$ or $\frac{d \sin \theta \tan \beta}{\sin(\phi - \theta)}$ (c) $d \left(\frac{\sin \phi \cos \theta}{\sin(\phi - \theta)} - 1 \right)$

EXERCISE 9.7

1. (i) $\frac{169\pi}{150} \text{cm}^2$, $5.2 + \frac{13\pi}{15} \text{cm}$ (ii) $\frac{529\pi}{32} \text{cm}^2$, $23 + \frac{23\pi}{8} \text{cm}$ (iii) $242\pi \text{cm}^2$, $88 + 11\pi \text{cm}$
(iv) $\frac{1156\pi}{75} \text{m}^2$, $13.6 + \frac{68\pi}{15} \text{m}$ (v) $\frac{96\pi}{625} \text{cm}^2$, $1.28 + \frac{12\pi}{25} \text{cm}$ (vi) $\frac{361\pi}{15} \text{cm}^2$, $15.2 + \frac{19\pi}{3} \text{cm}$
(vii) $5248.8\pi \text{m}^2$, $648 + 32.4\pi \text{cm}$ (viii) $\frac{12943\pi}{300} \text{cm}^2$, $17.2 + \frac{301\pi}{30} \text{cm}$
(ix) $\frac{1922\pi}{75} \text{cm}^2$, $12.4 + \frac{124\pi}{15} \text{cm}$ (x) $\frac{15884\pi}{3} \text{cm}^2$, $152 + \frac{418\pi}{3} \text{cm}$ (xi) $12\pi \text{cm}^2$, $24 + 2\pi \text{cm}$
(xii) $\frac{98\pi}{3} \text{cm}^2$, $28 + \frac{14\pi}{3} \text{cm}$ (xiii) $\frac{196\pi}{75} \text{cm}^2$, $5.6 + \frac{28\pi}{15} \text{cm}$ (xiv) $\frac{11532\pi}{25} \text{cm}^2$, $49.6 + \frac{186\pi}{5} \text{cm}$
(xv) $\frac{3\pi}{50} \text{cm}^2$, $2.4 + \frac{\pi}{10} \text{cm}$ 2. 0.63° , 36° 3. 0.0942m^3 4. 1.64° 5. 79cm 6. 5.25cm^2
7. (a) 31.83m (b) 406.28m (c) 11° 8. 1.11° 9. 0.75° 10. (a) 1.85° (b) i. 37.09 cm ii. 88.57 cm
(c) 370.92cm^2 11. 26.57cm^2 12. 193.5cm 13. (a) 105.22 cm (b) 118.83 cm 14. (a) 9 cm

- (b) 12 cm (c) $36^\circ 52'$



16. 1439.16 cm²

EXERCISE 10.1

1. (a) 120° (b) 108° (c) 216° (d) 50° 2. (a) π^c (b) $\frac{3\pi^c}{2}$ (c) $\frac{7\pi^c}{9}$ (d) $\frac{16\pi^c}{9}$ 3. (a) $\frac{\sqrt{3}}{2}$ (b) $-\frac{1}{2}$
(c) $-\sqrt{3}$ (d) $-\frac{1}{2}$ (e) $-\frac{\sqrt{3}}{2}$ (f) $\frac{1}{\sqrt{3}}$ (g) $-\frac{1}{\sqrt{2}}$ (h) $-\frac{1}{\sqrt{2}}$ (i) 1 (j) $-\frac{1}{\sqrt{2}}$ (k) $\frac{1}{\sqrt{2}}$ (l) -1 (m) 0 (n) 1 (o) 0
4. (a) 0 (b) -1 (c) 0 (d) $\frac{1}{\sqrt{2}}$ (e) $-\frac{1}{\sqrt{2}}$ (f) -1 (g) $\frac{1}{2}$ (h) $-\frac{\sqrt{3}}{2}$ (i) $\frac{1}{\sqrt{3}}$ (j) $-\frac{\sqrt{3}}{2}$ (k) $\frac{1}{2}$ (l) $-\sqrt{3}$
(m) $-\frac{1}{\sqrt{2}}$ (n) $\frac{1}{\sqrt{2}}$ (o) -1 5. (a) $\frac{1}{2}$ (b) $\frac{\sqrt{3}}{2}$ (c) 1 (d) $\frac{1}{2}$ 6. (a) $-\frac{1}{2}$ (b) $-\frac{1}{\sqrt{2}}$ (c) $\sqrt{3}$ (d) $\frac{1}{2}$ (e) $-\frac{\sqrt{3}}{2}$
(f) $\frac{1}{\sqrt{3}}$ (g) $-\frac{\sqrt{3}}{2}$ 7. (a) $\left(\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$ (b) $\left(-\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$ (c) $\left(-\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}}\right)$ (d) $\left(\frac{\sqrt{3}}{2}, -\frac{1}{2}\right)$ 8. (a) 0 (b) $\frac{\sqrt{3}}{2}$
(c) $\frac{1}{\sqrt{3}}$ (d) $\frac{1+\sqrt{3}}{2\sqrt{2}}$ 10. (a) $-\frac{2}{3}$ (b) $-\frac{2}{3}$ (c) $-\frac{2}{3}$ 11. (a) $-\frac{2}{5}$ (b) $\frac{2}{5}$ 12. (a) k (b) $-\frac{1}{k}$ (c) $-k$
13. (a) $\frac{\sqrt{5}}{3}$ (b) $-\frac{\sqrt{5}}{3}$ 14. (a) $-\frac{3}{5}$ (b) $\frac{3}{4}$ (c) $\frac{4}{5}$ 15. (a) $\frac{4}{5}$ (b) $\frac{3}{4}$ 16. (a) $-k$ (b) $-\sqrt{1-k^2}$
17. (a) $-\sqrt{1-k^2}$ (b) $\frac{k}{\sqrt{1-k^2}}$ 18. (a) $\sin \theta$ (b) $\cot \theta$ (c) 1 19. (a) $\frac{\pi}{3}, \frac{2\pi}{3}$ (b) $\frac{\pi}{3}, \frac{5\pi}{3}$ (c) $\frac{\pi}{3}, \frac{4\pi}{3}$
(d) $\frac{5\pi}{6}, \frac{7\pi}{6}$ (e) $\frac{5\pi}{6}, \frac{11\pi}{6}$ (f) $\frac{7\pi}{6}, \frac{11\pi}{6}$

EXERCISE 10.2.1

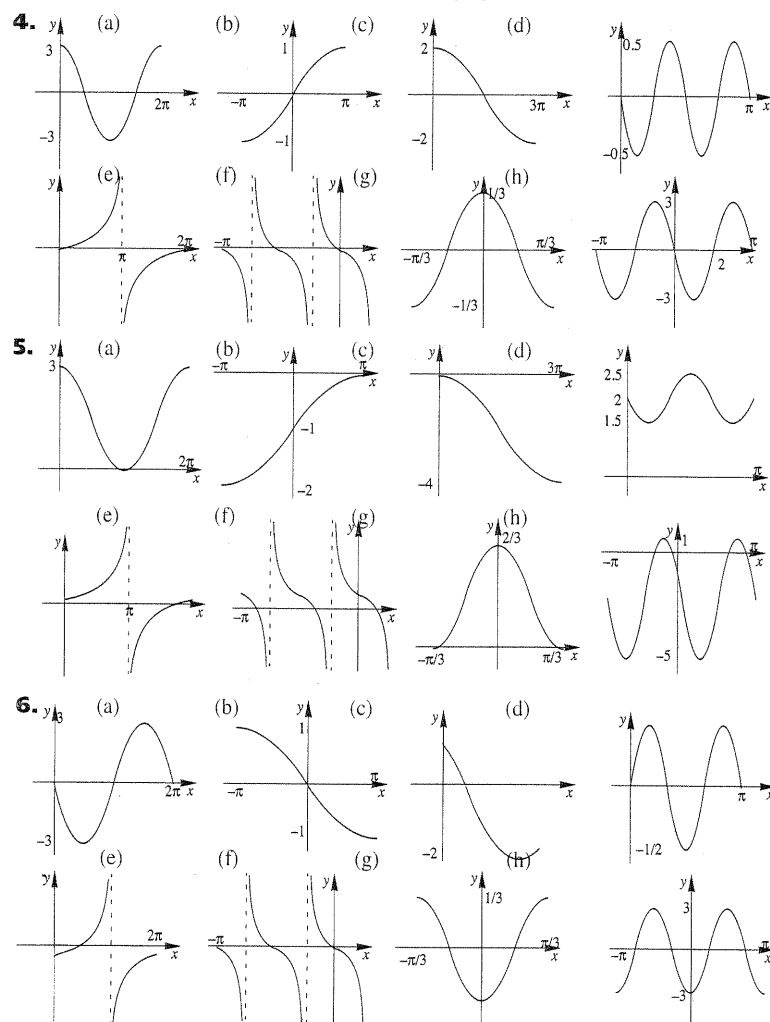
3. (a) $x^2 + y^2 = k^2$, $-k \leq x \leq k$ (b) $\frac{x^2}{b^2} + \frac{y^2}{a^2} = 1$, $-b \leq x \leq b$ (c) $(x-1)^2 + (2-y)^2 = 1$, $1 \leq x \leq 2$
(d) $\frac{(1-x)^2}{b^2} + \frac{(y-2)^2}{a^2} = 1$ (e) $5x^2 + 5y^2 + 6xy = 16$ 5. (a) $\frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$ (b) $\frac{\pi}{2}, \frac{7\pi}{6}, \frac{11\pi}{6}$
(c) 0, $\frac{\pi}{6}, \frac{5\pi}{6}, \pi, 2\pi$ (d) $\frac{\pi}{2}, \frac{3\pi}{2}$ 9. (a) $\frac{2a}{a^2+1}$ (b) $\frac{a^2-1}{a^2+1}$ 10. (a) 1 (b) 1 (c) 1 11. (a) $\frac{1-\sqrt{x^2-1}}{x}$
(b) $\frac{1+\sqrt{x^2-1}}{x}$ (c) $\frac{2}{x^2} - 1$ 12. (a) $5 \leq \cos^2 \theta + 5 \leq 6$ (b) $1 \leq \frac{5}{3\sin^2 \theta + 2} \leq \frac{5}{2}$
(c) $-2 \leq 2\cos^2 \theta + \sin \theta - 1 \leq 1$ 13. (a) ± 2 (b) $\frac{\pi}{6} + 2k\pi$, $k \in \mathbb{Z}$ or $\frac{7\pi}{6} + 2k\pi$, $k \in \mathbb{Z}$
14. (a) $5^{-4} \leq 5^{3\sin \theta - 1} \leq 25$ (b) $3^{-1} \leq 3^{1-2\cos \theta} \leq 27$ 15. (a) $1 + 2k$ (b) $(1-k)\sqrt{1+2k}$
16. (a) $\frac{1-a}{2\sqrt{a}}$ (b) i. $2 + \sqrt{2a-a^2}$ ii. $\frac{-\sqrt{2a-a^2}}{1-a}$ 17. (a) $\frac{2}{3}$ (b) 0, $\pm \frac{2\sqrt{2}}{3}$ 18. 0, $\frac{\pi}{3}, \frac{2\pi}{3}, \pi$

EXERCISE 10.2.2

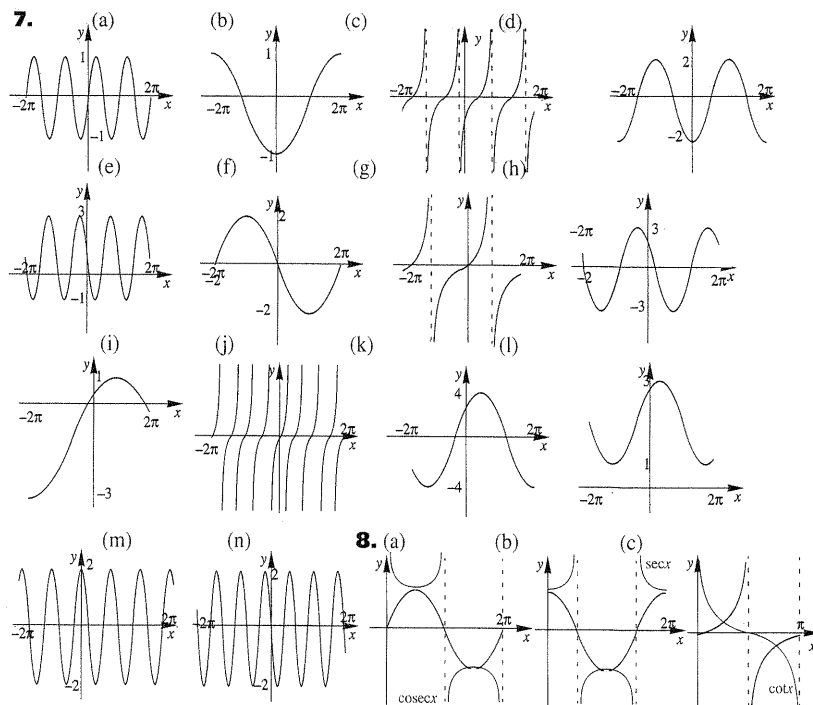
1. (a) $\frac{5\sqrt{11}}{18}$ (b) $\frac{7}{18}$ (c) $\frac{5\sqrt{11}}{7}$ (d) $\frac{35\sqrt{11}}{162}$ 2. (a) $-\frac{3}{5}$ (b) $-\frac{4}{5}$ (c) $\frac{3}{4}$ (d) $\frac{24}{7}$ 3. $\frac{(\sqrt{3}-1)\sqrt{2}}{4}$
4. (a) $\frac{2ab}{a^2+b^2}$ (b) $\frac{a^2+b^2}{2ab}$ (c) $\frac{a^4-6a^2b^2+b^4}{(a^2+b^2)^2}$ (d) $\frac{2ab}{b^2-a^2}$ 7. (a) $0, \pi, 2\pi$ (b) $\frac{\pi}{3}, \pi, \frac{5\pi}{3}, 2\pi$ (c) $0, \pi, 2\pi, \alpha, \pi \pm \alpha, 2\pi - \alpha, \alpha = \tan^{-1}\left(\frac{1}{\sqrt{2}}\right)$

EXERCISE 10.3

1. (a) 4π (b) $\frac{2\pi}{3}$ (c) 3π (d) 4π (e) 2 (f) $\frac{\pi}{2}$ 2. (a) 5 (b) 3 (c) 5 (d) 0.5 3. (a) $2\pi, 2$ (b) $6\pi, 3$ (c) π (d) π (e) $\pi, 4$ (f) $\pi, 3$ (g) 6π (h) $\frac{2\pi}{3}, \frac{1}{4}$ (i) 3π (j) $\frac{8\pi}{3}, \frac{2}{3}$



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EXERCISE 10.4

1. (a) $\frac{\pi}{4}, \frac{3\pi}{4}$ (b) $\frac{7\pi}{6}, \frac{11\pi}{6}$ (c) $\frac{\pi}{3}, \frac{2\pi}{3}$ (d) $\frac{\pi}{18}, \frac{5\pi}{18}, \frac{13\pi}{18}, \frac{17\pi}{18}, \frac{25\pi}{18}, \frac{29\pi}{18}$ (e) $\frac{\pi}{3}, \frac{5\pi}{3}$ (f) $\frac{5}{4}, \frac{7}{4}$
2. (a) $\frac{\pi}{4}, \frac{7\pi}{4}$ (b) $\frac{2\pi}{3}, \frac{4\pi}{3}$ (c) $\frac{\pi}{6}, \frac{11\pi}{6}$ (d) π (e) $\frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$ (f) $\frac{3}{2}, \frac{5}{2}, \frac{11}{2}$ 3. (a) $\frac{\pi}{6}, \frac{7\pi}{6}$ (b) $\frac{3\pi}{4}, \frac{7\pi}{4}$ (c) $\frac{\pi}{3}, \frac{4\pi}{3}$ (d) $4 \tan^{-1} 2$ (e) $\frac{\pi}{3}, \frac{5\pi}{6}, \frac{4\pi}{3}, \frac{11\pi}{6}$ (f) 3 4. (a) $90^\circ, 330^\circ$ (b) $180^\circ, 240^\circ$ (c) $90^\circ, 270^\circ$ (d) $65^\circ, 155^\circ$ (e) $\frac{\pi}{12}, \frac{5\pi}{12}, \frac{13\pi}{12}, \frac{17\pi}{12}$ (f) $0, \frac{3\pi}{4}$ 5. (a) $60^\circ, 300^\circ$ (b) $\frac{4\pi}{3}, \frac{5\pi}{3}$ (c) $\frac{\pi}{6}, \frac{7\pi}{6}$ (d) $23^\circ 35', 156^\circ 25'$ (e) $\frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$ (f) $\frac{2\pi}{3}, \frac{5\pi}{3}$ (g) $\frac{5\pi}{6}, \frac{9\pi}{6}$ (h) $3.3559^\circ, 5.2105^\circ$ (i) $\frac{\pi}{3}, \frac{4\pi}{3}$ (j) $\frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$ (k) $\frac{\pi}{6}, \frac{2\pi}{3}, \frac{7\pi}{6}, \frac{5\pi}{3}$ (l) $68^\circ 12', 248^\circ 12'$ 6. (a) $-\frac{3\pi}{4}, \frac{\pi}{4}$ (b) $\pm \frac{\pi}{3}$ (c) $-\frac{7\pi}{8}, -\frac{3\pi}{8}, \frac{\pi}{8}, \frac{5\pi}{8}$ (d) $-\frac{\pi}{2}$ (e) $\pm \frac{\pi}{2}$ (f) $\frac{\pi}{8}, \frac{7\pi}{8}, \frac{9\pi}{8}, \frac{15\pi}{8}$ (g) $\frac{\pi}{2}, \frac{3\pi}{2}$ (h) $\frac{\pi}{2}, \frac{3\pi}{2}$
7. (a) $\frac{3\pi}{4}, \frac{7\pi}{4}, \tan^{-1}\left(\frac{2}{3}\right), \pi + \tan^{-1}\left(\frac{2}{3}\right)$ (b) $\frac{\pi}{3}, \frac{2\pi}{3}, \frac{3\pi}{4}, \frac{4\pi}{3}, \frac{5\pi}{3}, \frac{7\pi}{4}$
8. (a) $\frac{\pi}{12}, \frac{5\pi}{12}, \frac{7\pi}{12}, \frac{11\pi}{12}, \frac{13\pi}{12}, \frac{17\pi}{12}, \frac{19\pi}{12}, \frac{23\pi}{12}$ (b) $\frac{2\pi}{3}, \frac{4\pi}{3}$ (c) $0, 1, 2, 3, 4, 5, 6$
9. i. $\left(\frac{\pi}{6}, \frac{5\pi}{6}\right) \cup \left(\frac{13\pi}{6}, \frac{17\pi}{6}\right)$ ii. $\left(\pi + \sin^{-1}\left(\frac{1}{\sqrt{3}}\right), 2\pi - \sin^{-1}\left(\frac{1}{\sqrt{3}}\right)\right) \cup \left(3\pi + \sin^{-1}\left(\frac{1}{\sqrt{3}}\right), 4\pi - \sin^{-1}\left(\frac{1}{\sqrt{3}}\right)\right)$

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10. (a) ii. $\left[0, \frac{\pi}{4}\right] \cup \left(\frac{5\pi}{4}, 2\pi\right]$ (b) ii. $\left[0, \frac{\pi}{6}\right] \cup \left(\frac{\pi}{2}, \frac{5\pi}{6}\right] \cup \left(\frac{3\pi}{2}, 2\pi\right]$ 11. (a) $90^\circ, 199^\circ 28', 340^\circ 32'$

(b) $(199^\circ 28', 340^\circ 32')$ 24. $\left\{(x, y) \mid x = 2k\pi + \frac{\pi}{2}, y = 2k\pi\right\} \cup \left\{(x, y) \mid x = 2k\pi - \frac{\pi}{2}, y = 2k\pi + \pi\right\}, k \in \mathbb{Z}$

EXERCISE 10.5

1. i. 5, 24, 3, 19 ii. $T = 5 \sin\left(\frac{\pi t}{12} - 3\right) + 19$ iii. 23.6° 2. i. 3. 4.2, 3, 7

ii. $L = 3 \sin\left(\frac{\pi t}{2.1} - 3\right) + 7$ 3. i. 5, 11, 0, 7 ii. $V = 5 \sin\left(\frac{2\pi t}{11}\right) + 7$ 4. i. 1, 11, 1, 12

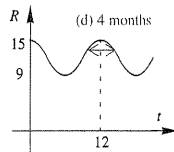
ii. $P = \sin\left(\frac{2\pi t}{11} - 1\right) + 12$ 5. i. 2.7, 7, 2, 6 ii. $S = 2.7 \sin\left(\frac{2\pi t}{7} - 2\right) + 6$ 6. i. 0.6, 3.5, 0, 11

ii. $P = 0.6 \sin\left(\frac{4\pi t}{7}\right) + 11$ 7. i. 0.8, 4.7, 5, 11 ii. $D = 0.8 \sin\left(\frac{2\pi t}{4.7} - 3.5\right) + 11$ 8. (a) 3000

(b) 1000, 5000 (c) $\frac{4}{9}$ 9. (a) 6.5 m, 7.5 m (b) 1.58 sec, 3.42 sec 10. (a) 750, 1850 (b) 3.44

(c) Mid-April to End of August

11. (a) 15000 (b) 12 months (c) 4 months (d) 4 months

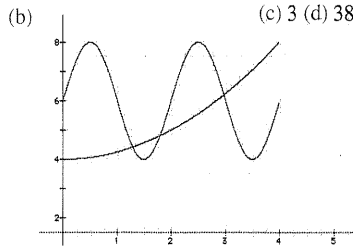


12. (a) $\pi, -2, 2$ (b) $\frac{1}{3}$ m (c) $\frac{4}{3}$ m

13. (a)

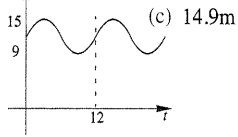
t	0	0.5	1	1.5	2	2.5	3	3.5	4
$F(t)$	6	8	6	4	6	8	6	4	6
$G(t)$	4	4.0625	4.25	4.5625	5	5.5625	6.25	7.0625	8

(c) 3 (d) 38.45%



14. (a) (b) i. 7, 11, 17, 23

ii. $[0, 7] \cup [11, 17] \cup [23, 24]$



EXERCISE 11.1.1

1. (i) $\begin{bmatrix} 2 & 8 \\ -2 & 16 \end{bmatrix}$ (ii) $\begin{bmatrix} -2 & 3 \\ 1 & -5 \end{bmatrix}$ (iii) $\begin{bmatrix} 6 & -9 \\ -3 & 15 \end{bmatrix}$ (iv) $\begin{bmatrix} 4 & 5 \\ -3 & 21 \end{bmatrix}$ (v) $\begin{bmatrix} 7 & 6 \\ -5 & 34 \end{bmatrix}$ (vi) $\begin{bmatrix} -2 & -19 \\ 3 & -27 \end{bmatrix}$

2. (i) $\begin{bmatrix} -1 & -1 & -2 \\ 0 & 6 & -9 \end{bmatrix}$ (ii) $\begin{bmatrix} -2 & -2 & -4 \\ 0 & 12 & -18 \end{bmatrix}$ (iii) $\begin{bmatrix} -2 & -5 \\ 2 & 2 \\ 3 & 1 \end{bmatrix}$ (iv) $\begin{bmatrix} 2 & 0 \\ 4 & 2 \\ 0 & -2 \end{bmatrix}$ (v) $\begin{bmatrix} 5 & 5 \\ 4 & 1 \\ -3 & -4 \end{bmatrix}$ (vi) $\begin{bmatrix} -6 & -15 \\ 6 & 6 \\ 9 & 3 \end{bmatrix}$

3. (i) $\begin{bmatrix} 3 & 3 & 6 \\ 0 & 3 & 12 \\ 0 & 6 & 3 \end{bmatrix}$ (ii) $\begin{bmatrix} -2 & -4 & 6 \\ 4 & 0 & 2 \\ 4 & 0 & -8 \end{bmatrix}$ (iii) $\begin{bmatrix} 0 & -1 & 5 \\ 2 & 1 & 5 \\ 2 & 2 & -3 \end{bmatrix}$ (iv) $\begin{bmatrix} 2 & 3 & -1 \\ -2 & 1 & 3 \\ -2 & 2 & 5 \end{bmatrix}$ (v) $\begin{bmatrix} 1 & -1 & 12 \\ 4 & 3 & 14 \\ 4 & 6 & -5 \end{bmatrix}$ (vi) $\begin{bmatrix} -3 & -5 & 4 \\ 4 & -1 & -2 \\ 4 & -2 & -9 \end{bmatrix}$

4. (i) 23 (ii) Nuts (iii) Taps (iv) Week 2 Wednesday = $B3 + I3, = B4 + I4$ 5. 7 by 5 6. $\begin{bmatrix} 3a & 3 \\ 0 & 0 \end{bmatrix}$

7. 3 8. 2 9. (a) $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ (b) $\begin{bmatrix} -\cos 2\theta & 0 \\ 0 & \cos 2\theta \end{bmatrix}$ (c) $\begin{bmatrix} -\cos 2\theta & 0 \\ 0 & \cos 2\theta \end{bmatrix}$ (d) $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$ 10. (a) $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

(b) $\begin{bmatrix} -\cos 2\theta & 2 \sin \theta \\ -2 \cos \theta & \cos 2\theta \end{bmatrix}$ 11. $a = 3, b = 4$ 12. $x = 1$

EXERCISE 11.1.2

1. (i) $\begin{bmatrix} 5 & -4 \\ 2 & -1 \end{bmatrix}$ (ii) $\begin{bmatrix} 6 & -8 \\ -15 & 26 \end{bmatrix}$ (iii) $\begin{bmatrix} -7 & 17 \\ 3 & 3 \end{bmatrix}$ (iv) $\begin{bmatrix} -15 & -10 \\ -10 & -36 \end{bmatrix}$ (v) $\begin{bmatrix} 19 & 89 \\ 6 & 3 \\ -1 & 11 \\ 8 & 2 \end{bmatrix}$ (vi) $\begin{bmatrix} 2.6 & 5.5 \\ -8.55 & 0 \end{bmatrix}$

(vii) $\begin{bmatrix} 12 & -4 & 2 \\ 6 & 0 & -3 \end{bmatrix}$ (viii) $\begin{bmatrix} -9 & 3 & 2 \\ 4 & -2 & -2 \end{bmatrix}$ (ix) $\begin{bmatrix} 7 & 3 & 7 \\ 6 & 2 & 3 \\ 13 & 5 & 29 \\ 3 & 5 & 3 \end{bmatrix}$ (x) $\begin{bmatrix} 1.6 & -0.7 & 3.8 \\ -3.9 & -4.2 & -5.7 \end{bmatrix}$ (xi) $\begin{bmatrix} 11 & -2 \\ 11 & 3 \\ 1 & -7 \end{bmatrix}$

(xii) $\begin{bmatrix} 7 & 5 \\ 21 & -26 \\ 6 & 4 \end{bmatrix}$ (xiii) $\begin{bmatrix} 12 & 6 & 2 \\ 12 & 1 & 4 \\ 21 & 3 & 6 \end{bmatrix}$ (xiv) $\begin{bmatrix} -5 & 6 & 1 \\ 4 & -4 & -12 \\ -1 & 4 & 2 \end{bmatrix}$ (xv) $\begin{bmatrix} -7 & 2 & 13 \\ 8 & -8 & -17 \\ -4 & -11 & 4 \end{bmatrix}$ (xvi) $\begin{bmatrix} -\frac{25}{2} & -\frac{50}{3} & 4 \\ 79 & 83 & 27 \\ 4 & -6 & 4 \\ -2 & \frac{11}{6} & \frac{3}{4} \end{bmatrix}$

(xvii) $\begin{bmatrix} x + 3x^2 & -x^2 + 1 \\ 2x + 5x^2 & -x^2 + 2 \\ -x^2 + 5x & -2x \end{bmatrix}$ (xviii) $\begin{bmatrix} a + 2x^2 - a^2 & 2a + 4x - 2x^2 + 2a \\ a - 2ax & -2a & 3a + 2ax \\ 0 & 2a & -ax - x \end{bmatrix}$

2. (i) $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ (ii) $\begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix}, \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}, \begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix}$ (iii) $\begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix}$ if n is odd and $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ if n is even.