Revision Exercise (Trigonometry I)

1.

a) $36°$ c) $20°$ e) $315°$ g) $75°$ i) $48°$ k) $562.5°$

b) $144°$ d) $80°$ f) $210°$ h) $165°$ j) $67.5°$ l) $396°$

2.

a) $25.71°$ c) $32.73°$ e) $41.54°$ g) $64.29°$ i) $192.86°$

b) $77.14°$ d) $114.55°$ f) $52.94°$ h) $141.43°$ j) $310.91°$

3.

a) $\frac{5\pi}{18}$ rad e) $\frac{\pi}{12}$ rad i) $\frac{\pi}{8}$ rad m) $\frac{41\pi}{18}$ rad q) $\frac{17\pi}{8}$ rad u) $\frac{\pi}{15}$ rad

b) $\frac{7\pi}{18}$ rad f) $\frac{\pi}{36}$ rad j) $\frac{7\pi}{8}$ rad n) $\frac{43\pi}{18}$ rad r) $\frac{17\pi}{6}$ rad v) $\frac{16\pi}{15}$ rad

c) $\frac{\pi}{9}$ rad g) $\frac{5\pi}{36}$ rad k) $\frac{\pi}{5}$ rad o) $\frac{19\pi}{9}$ rad s) $\frac{209\pi}{18}$ rad w) $\frac{32\pi}{3}$ rad

d) $\frac{2\pi}{9}$ rad h) $\frac{11\pi}{36}$ rad l) $\frac{2\pi}{5}$ rad p) $\frac{10\pi}{9}$ rad t) $\frac{\pi}{30}$ rad x) $\frac{41\pi}{5}$ rad

4.

a) 0.75 rad c) 2.04 rad e) 5.43 rad g) 5.48 rad i) 3.74 rad k) 10.00 rad

b) 0.44 rad d) 1.09 rad f) 4.35 rad h) 7.56 rad j) 8.47 rad l) 19.08 rad

5.

a) $-\sin 60°$ e) $-\cos 30°$ i) $-\tan 45°$ m) $\sin 50°$ q) $\sin 60°$ u) $\cos 10°$

b) $-\cos 60°$ f) $-\tan 30°$ j) $-\sin 40°$ n) $\cos 50°$ r) $-\sin 90°$ v) $\tan 80°$

c) $\tan 60°$ g) $-\sin 45°$ k) $\cos 40°$ o) $\tan 50°$ s) $\cos 20°$ w) $\tan 70°$

d) $\sin 30°$ h) $\cos 45°$ l) $-\tan 40°$ p) $\sin 30°$ t) $-\cos 50°$ x) $\tan 40°$

6.

a) $\frac{1}{2}$ c) $-\frac{1}{2}$ e) -1 g) $-\frac{2}{\sqrt{3}}$ i) $\frac{2}{\sqrt{3}}$ k) $\frac{\sqrt{3}}{2}$

b) $\frac{\sqrt{3}}{2}$ d) $\frac{1}{\sqrt{3}}$ f) 2 h) $-\sqrt{3}$ j) $\frac{\sqrt{2}}{2}$ l) $-\frac{1}{2}$

7.

a) 1
b) $\sqrt{3}$
c) $\frac{\sqrt{2}+1}{2}$
d) $\frac{1}{2\sqrt{3}}$
e) $\frac{-2+\sqrt{3}}{2}$
f) $1+\sqrt{3}$
g) $\sqrt{3}$
h) 0
i) 1

8.

a) (i) 36.87°
b) (i) 75.52°
c) (i) 75.96°
d) (i) 11.54°
e) (i) 7.13°
f) (i) 60°
g) (i) 26.57°
h) (i) 61.87°
i) (i) 72.83°

8.

a) (ii) 0.644 rad
b) (ii) 1.318 rad
c) (ii) 1.326 rad
d) (ii) 0.201 rad
e) (ii) 0.124 rad
f) (ii) 1.047 rad
g) (ii) 0.464 rad
h) (ii) 1.080 rad
i) (ii) 1.272 rad

9. a)

(i) 6 units
(ii) 16 units
(iii) 15 sq units
(iv) 11.65 sq units
(v) 5.65 units
(vi) 3.35 sq units

9. b)

(i) 2π units
(ii) $12+2\pi$ units
(iii) 6π sq units
(iv) $9\sqrt{3}$ sq units
(v) 6 units
(vi) $6\pi - 9\sqrt{3}$ sq units

9. c)

(i) $\frac{5\pi}{2}$ units
(ii) $20+\frac{5\pi}{2}$ units
(iii) $\frac{25\pi}{2}$ sq units
(iv) $25\sqrt{2}$ sq units
(v) 87.76 units
(vi) $\frac{25\pi}{2} - 25\sqrt{2}$ sq units

9. d)

(i) 16 units
(ii) 56 units
(iii) 160 sq units
(iv) 143.47 sq units
(v) 15.58 units
(vi) 16.53 sq units

9. e)

(i) 14.42 units
(ii) 35.02 units
(iii) 74.26 sq units
(iv) 52.27 sq units
(v) 13.27 units
(vi) 21.99 sq units

9. f)

(i) $\frac{45\pi}{2}$ units
(ii) $90 + \frac{45\pi}{2}$ units
(iii) $\frac{2025\pi}{4}$ sq units
(iv) 1012.5 sq units
(v) $45\sqrt{2}$ units
(vi) 577.93 sq units

9. g)

(i) $\pi\sqrt{2}$ units
(ii) $2\sqrt{2} + \pi\sqrt{2}$ units
(iii) π sq units
(iv) 0 sq units
(v) $2\sqrt{2}$ units
(vi) π sq units

9. h)

(i) 300 units
(ii) 500 units
(iii) 15000 sq units
(iv) 705.60 sq units
(v) 199.50 units
(vi) 14294.40 sq units

9. i)

(i) $50\pi - 50$ units
(ii) $50\pi + 50$ units
(iii) $1250\pi - 1250$ sq units
(iv) 1051.84 sq units
(v) 87.76 units
(vi) 1625.15 sq units

10. a)

(i) 5.5 units
(ii) 19.5 units
(iii) 19.2 sq units
(iv) 17.3 sq units
(v) 5.4 units
(vi) 1.9 sq units

10. b)

(i) 9.4 units
(ii) 21.4 units
(iii) 28.3 sq units
(iv) 18.0 sq units
(v) 8.5 units
(vi) 10.3 sq units

10. c)

(i) 11.0 units
(ii) 31.0 units
(iii) 55.0 sq units
(iv) 44.6 sq units
(v) 10.5 units
(vi) 10.4 sq units

10. d)

(i) 16.8 units
(ii) 32.8 units
(iii) 67.0 sq units
(iv) 27.7 sq units
(v) 13.9 units
(vi) 39.3 sq units

10. e)

(i) 12.5 units
(ii) 34.5 units
(iii) 68.6 sq units
(iv) 54.8 sq units
(v) 11.8 units
(vi) 13.8 sq units

10. f)

(i) 14.3 units
(ii) 35.3 units
(iii) 75.1 sq units
(iv) 53.9 sq units
(v) 13.2 units
(vi) 21.1 sq units

10. g)

(i) 27.9 units
(ii) 107.9 units
(iii) 558.6 sq units
(iv) 514.3 sq units
(v) 27.4 units
(vi) 44.3 sq units

10. h)

(i) 63.3 units
(ii) 113.3 units
(iii) 791.0 sq units
(iv) 179.2 sq units
(v) 47.7 units
(vi) 611.8 sq units

10. i)

(i) 86.9 units
(ii) 153.3 units
(iii) 1443.0 sq units
(iv) 275.4 sq units
(v) 64.1 units
(vi) 1167.6 sq units

11. a)

(i) $\frac{8}{3}$ rad
(ii) 8 units
(iii) 14 units

11. b)

(i) $\frac{25}{8}$ rad
(ii) $\frac{25}{2}$ units
(iii) $\frac{41}{2}$ units

11. c)

(i) $\frac{\pi}{2}$ rad
(ii) 2π units
(iii) $8 + 2\pi$ units

11. d)

(i) 0.75 rad
(ii) 7.75 units
(iii) 28.55 units

12. a)

(i) 2 units
(ii) 4 units
(iii) 8 units

12. b)

(i) 3 units
(ii) 3π units
(iii) $6 + 3\pi$ units

12. c)

(i) 6.93 units
(ii) 17.32 units
(iii) 31.18 units

12. d)

(i) 6.07 units
(ii) 7.28 units
(iii) 19.42 units

12. e)

(i) 6.91 units (ii) 7.24 units (iii) 21.06 units

12. f)

(i) 7.52 units (ii) 239.37 units (iii) 254.41 units