

Trigonometry Practice

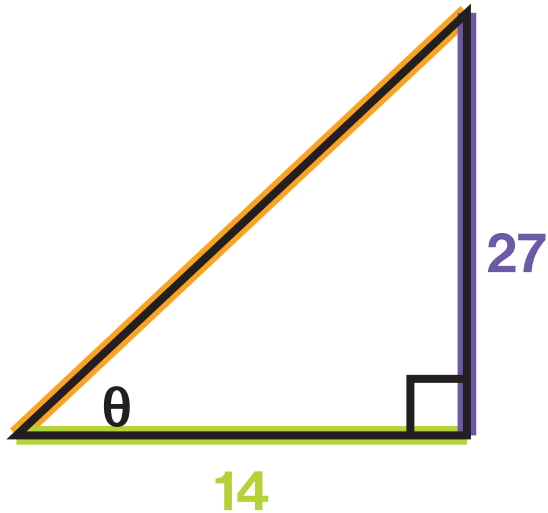
Name: _____

Date: _____

Question 1

Find the trigonometric function values of the angle

I.



$\sin \theta$:

$\cos \theta$:

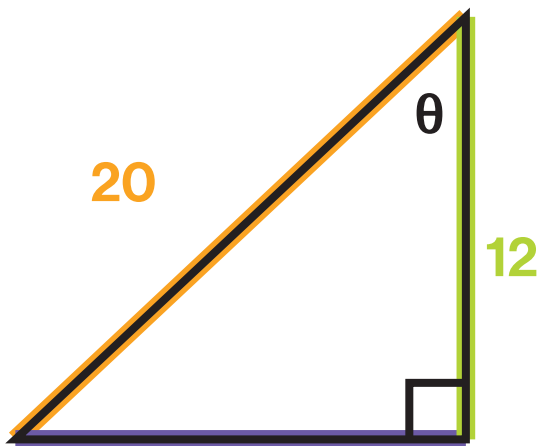
$\tan \theta$:

$\csc \theta$:

$\sec \theta$:

$\cot \theta$:

II.



$\sin \theta$:

$\cos \theta$:

$\tan \theta$:

$\csc \theta$:

$\sec \theta$:

$\cot \theta$:

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Question 2

Solve (calculator and unit circle)

I. $\cos 45^\circ =$ $\sin 45^\circ =$ $\tan 45^\circ =$

$\sec 45^\circ =$ $\csc 45^\circ =$ $\cot 45^\circ =$

II. $\cos 30^\circ =$ $\sin 30^\circ =$ $\tan 30^\circ =$

$\sec 30^\circ =$ $\csc 30^\circ =$ $\cot 30^\circ =$

III. $\cos 60^\circ =$ $\sin 60^\circ =$ $\tan 60^\circ =$

$\sec 60^\circ =$ $\csc 60^\circ =$ $\cot 60^\circ =$

IV. $\cos 90^\circ =$ $\sin 90^\circ =$ $\tan 90^\circ =$

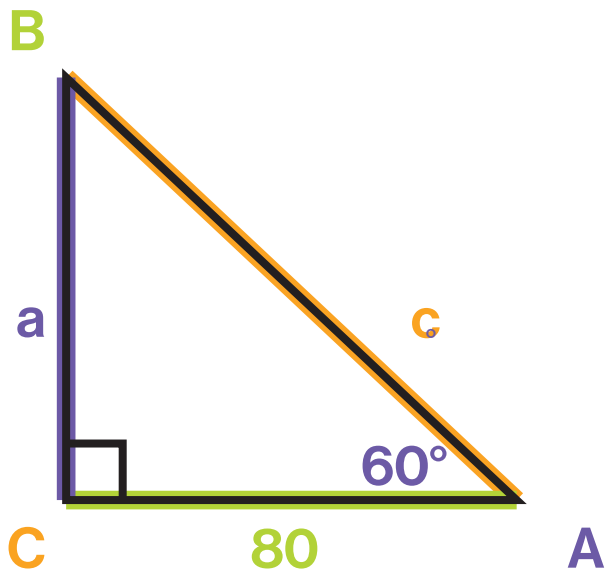
$\sec 90^\circ =$ $\csc 90^\circ =$ $\cot 90^\circ =$

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Question 3

Solve (calculator)

I.



$$A = 60^\circ$$

$$a =$$

$$B =$$

$$b = 80$$

$$C =$$

$$c =$$

Question 4

Convert (round to two decimal places)

I. $49^\circ 38' 46''$

II. 20.14°

Trigonometry Practice

Question 5

Solve (calculator)(round to four decimal places)

I. $\cos 51^\circ =$

II. $\sin 59.2^\circ =$

III. $\tan 85.4^\circ =$

IV. $\sec 38.43^\circ =$

V. $\csc 89.5^\circ =$

VI. $\cot 17^\circ =$

Question 6

Solve (calculator)(round to one decimal place)

I. $\cos \theta = 0.3842$

II. $\sin \theta = 0.9022$

III. $\tan \theta = 2.032$

IV. $\sec \theta = 1.279$

V. $\csc \theta = 1.147$

VI. $\cot \theta = 2.127$

Question 7

Solve (calculator and unit circle)

I. $\sin \theta = \sqrt{2}/2$

II. $\cos \theta = 1/2$

III. $\tan \theta = 1$

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Question 8

Convert (calculator)

I. $\frac{\pi}{4} \cdot \frac{180}{\pi} =$

II. $\frac{-9\pi}{4} \cdot \frac{180}{\pi} =$

III. $\frac{9\pi}{4} \cdot \frac{180}{\pi} =$

IV. $45^\circ \cdot \frac{\pi}{180} =$

V. $75^\circ \cdot \frac{\pi}{180} =$

VI. $12.5^\circ \cdot \frac{\pi}{180} =$

Question 9

Find a positive and a negative angle that are coterminal with the given angle (calculator)

I. $\frac{\pi}{4}$

Question 10

Find the supplement and complement

I. $\frac{\pi}{4}$

Question 11

Solve (calculator)

I. Radius: $r = 2$ yd

Angle: $\theta = 1.6$ radians

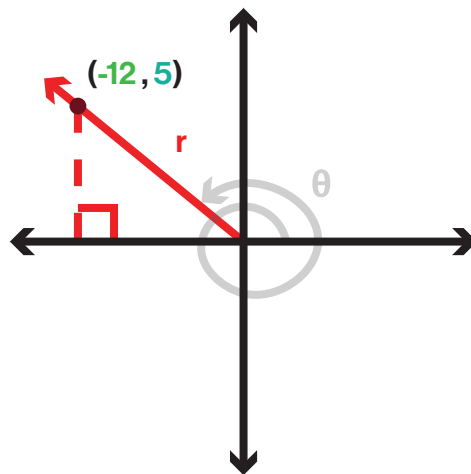
Arc Length: $s =$

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Question 12

Find the trigonometric function values

I.



$\sin \theta$:

$\csc \theta$:

$\cos \theta$:

$\sec \theta$:

$\tan \theta$:

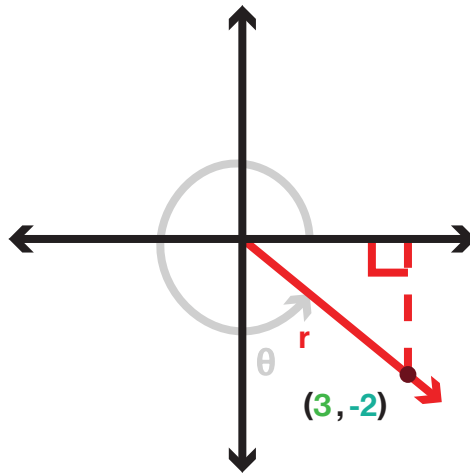
$\cot \theta$:

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Question 13

Find the trigonometric function values

I. Line : $2x + 3y = 0$ Quadrant : IV



$\sin \theta$:

$\csc \theta$:

$\cos \theta$:

$\sec \theta$:

$\tan \theta$:

$\cot \theta$:

Trigonometry Practice

Question 14

Solve (calculator)(round to four decimal places)

I. $\cos 150^\circ =$

II. $\sin 7560^\circ =$

III. $\tan -135^\circ =$

IV. $\sec -225^\circ =$

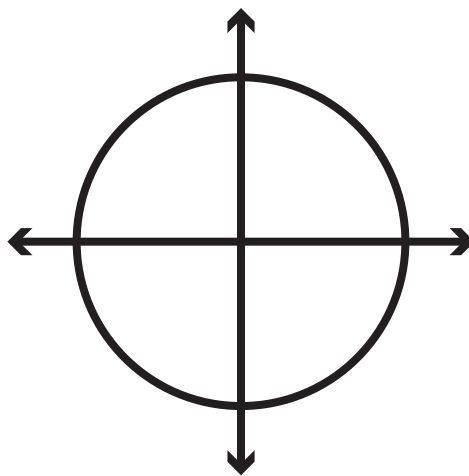
V. $\csc -210^\circ =$

VI. $\cot 570^\circ =$

Question 15

Find the reflections of the coordinates

I. $\left(\frac{-\sqrt{3}}{2}, \frac{-1}{2} \right)$



Question 16

Solve (calculator in radian mode and unit circle)

I. $\cos (-\pi / 3) =$

II. $\sin (-3\pi) =$

III. $\tan (11\pi / 4) =$

IV. $\sec (\pi / 2) =$

V. $\csc (3\pi / 4) =$

VI. $\cot (7\pi / 6) =$

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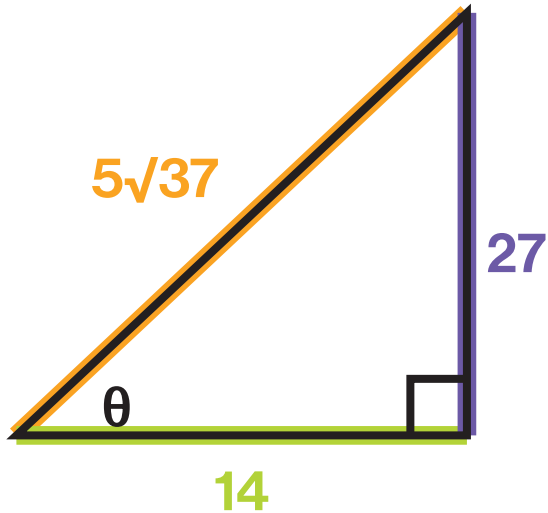
Name: _____ **Key** _____

Date: _____

Question 1

Find the trigonometric function values of the angle

I.



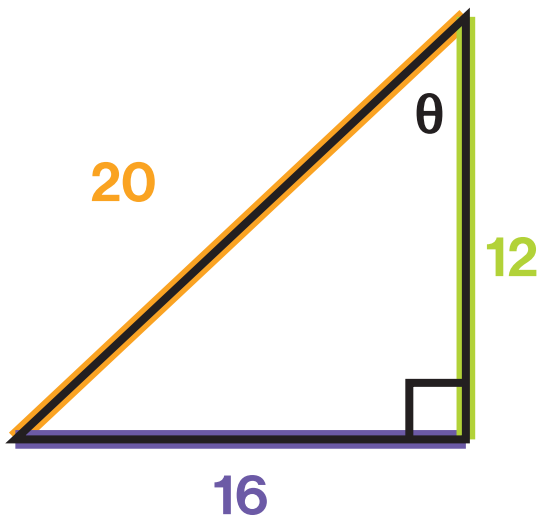
$$\sqrt{27^2 + 14^2} = 5\sqrt{37}$$

$$\sin \theta : 27 / 5\sqrt{37} \rightarrow 27\sqrt{37} / 185 \quad \csc \theta : 5\sqrt{37} / 27$$

$$\cos \theta : 14 / 5\sqrt{37} \rightarrow 14\sqrt{37} / 185 \quad \sec \theta : 5\sqrt{37} / 14$$

$$\tan \theta : 27 / 14 \quad \cot \theta : 14 / 27$$

II.



$$\sqrt{20^2 - 12^2} = 16$$

$$\sin \theta : 4 / 5$$

$$\cos \theta : 3 / 5$$

$$\tan \theta : 4 / 3$$

$$\csc \theta : 5 / 4$$

$$\sec \theta : 5 / 3$$

$$\cot \theta : 3 / 4$$

Trigonometry Practice

Question 2

Solve (calculator and unit circle)

I. $\cos 45^\circ = \sqrt{2} / 2$

$\sin 45^\circ = \sqrt{2} / 2$

$\tan 45^\circ = 1$

$\sec 45^\circ = \sqrt{2}$

$\csc 45^\circ = \sqrt{2}$

$\cot 45^\circ = 1$

$$\frac{\frac{1}{\sqrt{2}}}{\frac{1}{2}} = \sqrt{2}$$

$$\frac{\frac{1}{\sqrt{2}}}{\frac{1}{2}} = \sqrt{2}$$

$$\frac{1}{1} = 1$$

II. $\cos 30^\circ = \sqrt{3} / 2$

$\sin 30^\circ = 1 / 2$

$\tan 30^\circ = \sqrt{3} / 3$

$$\sec 30^\circ = \frac{2\sqrt{3}}{3}$$

$\csc 30^\circ = 2$

$\cot 30^\circ = \sqrt{3}$

$$\frac{\frac{1}{\sqrt{3}}}{\frac{1}{2}} = \frac{2\sqrt{3}}{3}$$

$$\frac{\frac{1}{1}}{\frac{1}{2}} = 2$$

$$\frac{\frac{1}{\sqrt{3}}}{\frac{1}{3}} = \sqrt{3}$$

III. $\cos 60^\circ = 1 / 2$

$\sin 60^\circ = \sqrt{3} / 2$

$\tan 60^\circ = \sqrt{3}$

$\sec 60^\circ = 2$

$$\csc 60^\circ = \frac{2\sqrt{3}}{3}$$

$\cot 60^\circ = \sqrt{3} / 3$

$$\frac{\frac{1}{1}}{\frac{1}{2}} = 2$$

$$\frac{\frac{1}{\sqrt{3}}}{\frac{1}{2}} = \frac{2\sqrt{3}}{3}$$

$$\frac{1}{\sqrt{3}} = \sqrt{3} / 3$$

IV. $\cos 90^\circ = 0$

$\sin 90^\circ = 1$

$\tan 90^\circ = \text{undefined}$

$\sec 90^\circ = \text{undefined}$

$\csc 90^\circ = 1$

$\cot 90^\circ = 0$

$$\frac{1}{0} = \text{undefined}$$

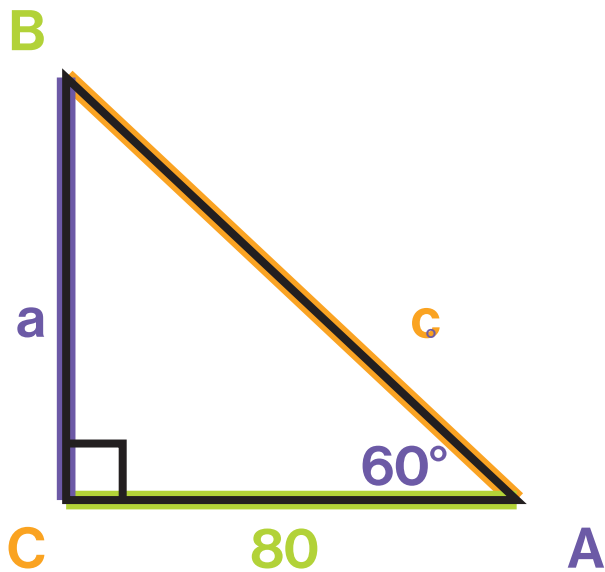
$$\frac{1}{1} = 1$$

Trigonometry Practice

Question 3

Solve (calculator)

I.



$$A = 60^\circ$$

$$a = 80\sqrt{3}$$

$$\tan(60^\circ) = \frac{a}{80}$$

$$80 \tan(60^\circ) = 80\sqrt{3}$$

$$B = 90^\circ - 60^\circ = 30^\circ$$

$$b = 80$$

$$C = 90^\circ$$

$$c = 160$$

$$\cos(60^\circ) = \frac{80}{c}$$

$$\frac{80}{\cos(60^\circ)} = 160$$

Question 4

Convert (round to two decimal places)

I.

$$\begin{aligned} &49^\circ 38' 46'' \\ &\downarrow \\ &49^\circ + 38' + 46'' \\ &\downarrow \\ &49^\circ + 38' + (46' / 60) \\ &\downarrow \\ &49^\circ + 38' + 0.77' \\ &\downarrow \\ &49^\circ + 38.77' \\ &\downarrow \\ &49^\circ + (38.77' / 60) \\ &\downarrow \\ &49^\circ + 0.65^\circ \\ &\downarrow \\ &49.65^\circ \end{aligned}$$

II.

$$\begin{aligned} &20.14^\circ \\ &\downarrow \\ &20^\circ + 0.14^\circ \\ &\downarrow \\ &20^\circ + (0.14' \cdot 60) \\ &\downarrow \\ &20^\circ + 8.4' \\ &\downarrow \\ &20^\circ 8' (0.4'' \cdot 60) \\ &\downarrow \\ &20^\circ 8' 24'' \end{aligned}$$

Trigonometry Practice

Question 5

Solve (calculator)(round to four decimal places)

I. $\cos 51^\circ = 0.6293$

II. $\sin 59.2^\circ = 0.8590$

III. $\tan 85.4^\circ = 12.4288$

IV. $\sec 38.43^\circ = 1.2765$

V. $\csc 89.5^\circ = 1.0000$

VI. $\cot 17^\circ = 3.2709$

$$\frac{1}{\cos 38.43^\circ} = 1.2765$$

$$\frac{1}{\sin 89.5^\circ} = 1.0000$$

$$\frac{1}{\tan 17^\circ} = 3.2709$$

Question 6

Solve (calculator)(round to one decimal place)

I. $\cos \theta = 0.3842$

II. $\sin \theta = 0.9022$

III. $\tan \theta = 2.032$

$$\cos^{-1}(0.3842) = 67.4^\circ = \theta$$

$$\sin^{-1}(0.9022) = 64.4^\circ = \theta$$

$$\tan^{-1}(2.032) = 63.8^\circ = \theta$$

IV. $\sec \theta = 1.279$

V. $\csc \theta = 1.147$

VI. $\cot \theta = 2.127$

$$\cos^{-1}(1 / 1.279) = 38.6^\circ = \theta$$

$$\sin^{-1}(1 / 1.147) = 60.7^\circ = \theta$$

$$\tan^{-1}(1 / 2.127) = 25.2^\circ = \theta$$

Question 7

Solve (calculator and unit circle)

I. $\sin \theta = \sqrt{2} / 2$

II. $\cos \theta = 1 / 2$

III. $\tan \theta = 1$

$$\sin^{-1}(\sqrt{2} / 2) = 45^\circ = \theta$$

$$\cos^{-1}(1 / 2) = 60^\circ = \theta$$

$$\tan^{-1}(1) = 45^\circ = \theta$$

Trigonometry Practice

Question 8

Convert (calculator)

I. $\frac{\pi}{4} \cdot \frac{180}{\pi} = 45^\circ$

II. $\frac{-9\pi}{4} \cdot \frac{180}{\pi} = -405^\circ$

III. $\frac{9\pi}{4} \cdot \frac{180}{\pi} = 405^\circ$

IV. $45^\circ \cdot \frac{\pi}{180} = \frac{\pi}{4}$

V. $75^\circ \cdot \frac{\pi}{180} = \frac{5\pi}{12}$

VI. $12.5^\circ \cdot \frac{\pi}{180} = \frac{5\pi}{72}$

Question 9

Find a positive and a negative angle that are coterminal with the given angle (calculator)

I. $\frac{\pi}{4}$

$$\frac{\pi}{4} \cdot \frac{180}{\pi} = 45^\circ$$

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

$$\frac{\pi}{4} - 2\pi = \frac{-7\pi}{4}$$

$$45^\circ + 360^\circ = 405^\circ$$

$$45^\circ - 360^\circ = -315^\circ$$

Question 10

Find the supplement and complement

I. $\frac{\pi}{4}$

$$\frac{\pi}{4} \cdot \frac{180}{\pi} = 45^\circ$$

Supplement

$$180^\circ - 45^\circ = 135^\circ$$

$$135^\circ \cdot \frac{\pi}{180} = \frac{3\pi}{4}$$

Complement

$$90^\circ - 45^\circ = 45^\circ$$

$$45^\circ \cdot \frac{\pi}{180} = \frac{\pi}{4}$$

Question 11

Solve (calculator)

I. Radius: $r = 2$ yd

Angle: $\theta = 1.6$ radians

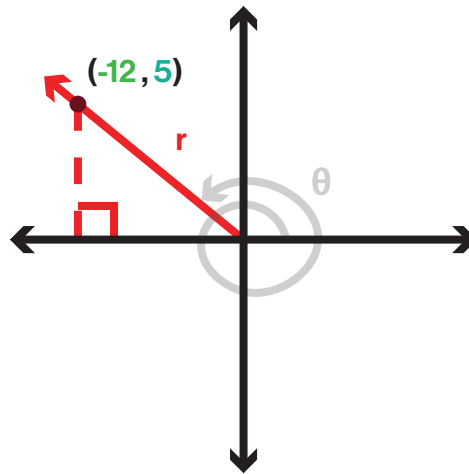
Arc Length: $s = (2 \text{ yd})(1.6) = 3.2$ yd

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Question 12

Find the trigonometric function values

I.



$$r = \sqrt{(-12)^2 + (5)^2} = 13$$

$$\sin \theta = 5 / 13$$

$$\csc \theta = 13 / 5$$

$$\cos \theta = -12 / 13$$

$$\sec \theta = 13 / -12$$

$$\tan \theta = 5 / -12$$

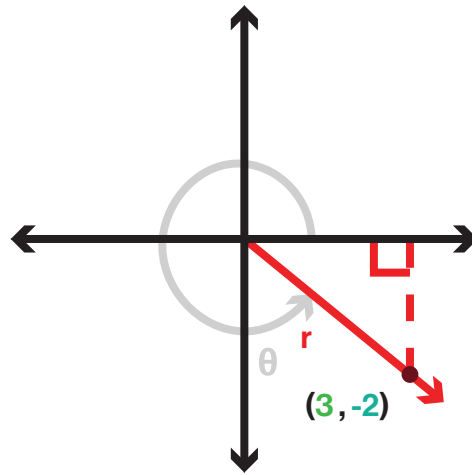
$$\cot \theta = -12 / 5$$

Trigonometry Practice

Question 13

Find the trigonometric function values

I. Line : $2x + 3y = 0$ Quadrant : IV



$$r = \sqrt{(3)^2 + (-2)^2} = \sqrt{13}$$

$$\sin \theta = \frac{-2}{\sqrt{13}} \rightarrow \frac{-2\sqrt{13}}{13}$$

$$\csc \theta = \frac{\sqrt{13}}{-2}$$

$$\cos \theta = \frac{3}{\sqrt{13}} \rightarrow \frac{3\sqrt{13}}{13}$$

$$\sec \theta = \frac{\sqrt{13}}{3}$$

$$\tan \theta = \frac{-2}{3}$$

$$\cot \theta = \frac{3}{-2}$$

Trigonometry Practice

Question 14

Solve (calculator)(round to four decimal places)

I. $\cos 150^\circ = -\sqrt{3}/2$

II. $\sin 7560^\circ = 0$

III. $\tan -135^\circ = 1$

IV. $\sec -225^\circ = -\sqrt{2}$

V. $\csc -210^\circ = 2$

VI. $\cot 570^\circ = \sqrt{3}$

$$\frac{1}{\cos -225^\circ} = -\sqrt{2}$$

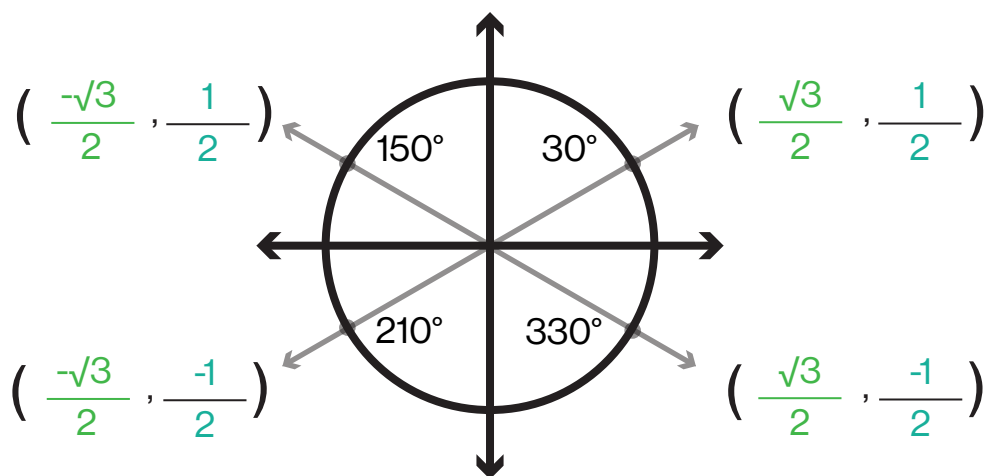
$$\frac{1}{\sin -210^\circ} = 2$$

$$\frac{1}{\tan 570^\circ} = \sqrt{3}$$

Question 15

Find the reflections of the coordinates

I. $\left(\frac{-\sqrt{3}}{2}, \frac{-1}{2} \right)$



Question 16

Solve (calculator in radian mode and unit circle)

I. $\cos (-\pi/3) = 1/2$

II. $\sin (-3\pi) = 0$

III. $\tan (11\pi/4) = -1$

IV. $\sec (\pi/2) = \text{undefined}$

V. $\csc (3\pi/4) = \sqrt{2}$

VI. $\cot (7\pi/6) = \sqrt{3}$

$$\frac{1}{\cos (\pi/2)} = \text{undefined}$$

$$\frac{1}{\sin (3\pi/4)} = \sqrt{2}$$

$$\frac{1}{\tan (7\pi/6)} = \sqrt{3}$$