

Pre-Calculus 11 - VLN

Chapter 6: Trigonometry

Lesson 5: Angles and the Coordinate Plane

Question #1

Reference Q.18959

Draw the terminal arm of 0° .

Question #2

Reference Q.18961

Draw the terminal arm of 45° .

Question #3

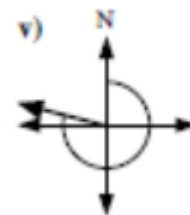
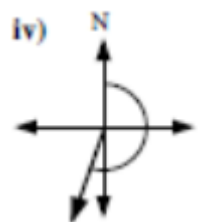
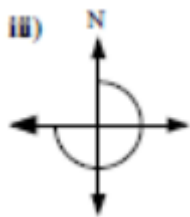
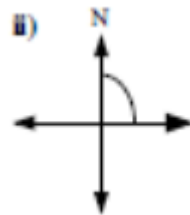
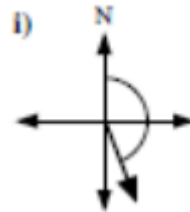
Reference Q.18960

Draw the terminal arm of 180° .

Question #4

Reference Q.13347

Pair the following bearings with the correct diagram.



a. 270°

b. 160°

c. 285°

d. 90°

e. 200°

Question #5

Reference Q.13252

In each case, the given point is on the terminal arm of an angle of θ° . Draw the angle θ° in standard position.

- a. $P(7, -4)$
- b. $Q(-2, 3)$
- c. $R(-1, -4)$

Question #6

Reference Q.18973

- a. Find one positive coterminal angle and one negative coterminal angle of 30° .
- b. How many coterminal angles to 30° are there?
- c. Find all angles that are coterminal with 30° .

Question #7

Reference Q.18974

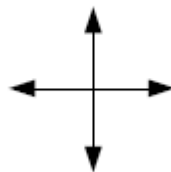
- a. Find one positive coterminal angle and one negative coterminal angle of 115620° .
- b. How many coterminal angles to 115620° are there?
- c. Find all angles that are coterminal with 115620° .

Question #8

Reference Q.13250

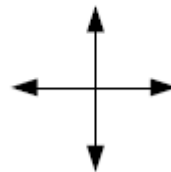
Sketch the following rotation angles in standard position, and state the quadrant in which the angle terminates.

a) 135°



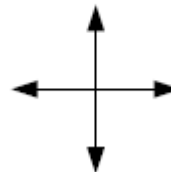
a.

b) 300°



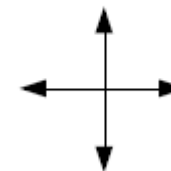
b.

c) 190°



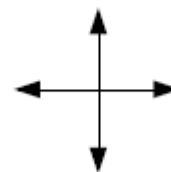
c.

d) 70°



d.

e) 270°



e.

Question #9

Reference Q.18962

Let $\theta = 150^\circ$.

- a. In which quadrant does the terminal arm lie?
- b. Draw the terminal arm and state the reference angle in your drawing.

Question #10

Reference Q.18963

Let $\theta = 240^\circ$.

- In which quadrant does the terminal arm lie?
- Draw the terminal arm and state the reference angle in your drawing.

Question #11

Reference Q.18964

Let $\theta = -405^\circ$.

- In which quadrant does the terminal arm lie?
- Draw the terminal arm and state the reference angle in your drawing.

Question #12

Reference Q.18965

Find the reference angle.

- 225°
- 510°
- -1080°

Question #13

Reference Q.13273

An angle of 134° in standard position has a reference angle of

- 44°
- 46°
- 134°
- 226°

Question #14

Reference Q.13253

In each case, sketch the rotation angle and state the reference angle.

- 230°
- 313°
- 109°
- 20°
- 180°
- 270°

Question #15

Reference Q.13255

Find the reference angle for the following rotation angles.

- 135°
- 296°
- 237°
- 90°

Question #16

Reference Q.13256

For each of the following angles, determine;

- the quadrant of the terminal arm of the angle
- the reference angle

- 355°
- 170°
- 190°
- 51°

Question #17

Reference Q.13276

Which one of the following angles in standard position has the same reference angle as an angle of 165° ?

- 25°
- 205°
- 255°
- 345°

Question #18

Reference Q.13277

There are four angles in standard position between 0° and 360° which have a reference angle of 51° . The sum of these angles is ____.

Question #19

Reference Q.13269

Given that a rotation angle of x° in standard position has a terminal arm in the first quadrant, state expressions for four rotation angles between 0° and 360° which have a reference angle of x° .

Question #20

Reference Q.13271

Determine three angles between 0° and 360° which have the same reference angle as a rotation angle of 136° .

Question #21

Reference Q.13272

Determine three angles between 0° and 360° which have the same reference angle as a rotation angle of 303° .

Question #22

Reference Q.13274

Use the following information to answer the next question.

Row	Rotation Angle	Quadrant of Terminal Arm	Reference Angle
1	264°	3	96°
2	139°	2	41°
3	357°	4	3°
4	94°	1	86°

Which of the following rows contain an error?

- A. row 1 only
- B. row 4 only
- C. rows 1 and 4 only
- D. rows 1,2,3, and 4

Question #23

Reference Q.13275

Use the following information to answer the next question.

Meghan makes four statements connecting rotation angles and reference angles.	
Statement I:	In quadrant 1, the rotation angle is equal to the reference angle.
Statement II:	In quadrant 2, the rotation angle is equal to 180° minus the reference angle.
Statement III:	In quadrant 3, the rotation angle is equal to 180° plus the reference angle.
Statement IV:	In quadrant 4, the rotation angle is equal to 360° minus the reference angle.

How many of Meghan's statements are true?

- A. 1
- B. 2
- C. 3
- D. 4

Question #24

Reference Q.13265

Students were asked to determine the reference angle for a rotation angle of 214° .

- a. Jeff gave an incorrect answer of 56° . Use a diagram to explain how he arrived at his answer.
- b. Mandy gave an incorrect answer of 146° . Use a diagram to explain how she arrived at her answer.
- c. State the correct answer.

Question #25

Reference Q.13258

- a. Sketch a diagram to show a reference angle of 30° in each of quadrants one to four.
- b. State the measure of the rotation angle in each quadrant.

- c. Let $P\left(\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$ be a point on the terminal arm of the rotation angle in quadrant one. State the coordinates of points Q , R , and S which are on the terminal arms of the rotation angles in quadrant two, quadrant three, and quadrant four respectively.

Question #26

Reference Q.13261

- a. Sketch a diagram to show a reference angle of 77° in each of quadrants one to four.
- b. State the measure of the rotation angle in each quadrant.
- c. Let $P(a, b)$ be a point on the terminal arm of the rotation angle in quadrant one. State the coordinates of points Q , R , and S which are on the terminal arms of the rotation angles in quadrant two, quadrant three, and quadrant four respectively.

Question #27

Reference Q.13263

Complete the following tables, given the reference angle and the quadrant.

Reference Angle	Quadrant	Sketch	Rotation Angle	Reference Angle	Quadrant	Sketch	Rotation Angle
30°	2			30°	1		
30°	3			30°	4		
60°	1			4°	3		
55°	2			89°	2		
15°	4			0°	between 2 and 3		
76°	3			90°	between 1 and 2		

 Question #28

Reference Q.13270

Complete the following table.

Reference Angle	Rotation Angle in:			
	Quad 1	Quad 2	Quad 3	Quad 4
28°				
39°				
a°				
		114°		
			201°	
				295°