

Chapter 9 Mini-Test Review

PART I - NO CALCULATOR

List one positive and one negative coterminal angle. (There are many correct answers)

1. $-\frac{11\pi}{9}$

2. 625°

Convert the angle measurement from degrees to radians. Leave your answer in terms of π .

3. 15°

4. -495°

Convert the angle measurement from radians to degrees.

5. $\frac{13\pi}{9}$

6. $-\frac{3\pi}{5}$

Find the reference angle for the given angle.

7. $\frac{-5\pi}{7}$

8. 301.2°

9. Find the six trigonometric functions of the angle θ (in standard position) whose terminal side passes through the point $(-5, -2)$

Without using a calculator, find the following trig values, leaving your answers as simplified as possible (all fractions reduced and denominators rationalized).

10. $\sin 16\pi$

11. $\cos(-210^\circ)$

12. $\tan \frac{4\pi}{3}$

13. $\sec\left(-\frac{3\pi}{2}\right)$

14. $\csc(135^\circ)$

15. $\cot \frac{11\pi}{6}$

16. $\cos\left(-\frac{\pi}{6}\right)$

17. $\sin(-360^\circ)$

18. $\csc \frac{9\pi}{2}$

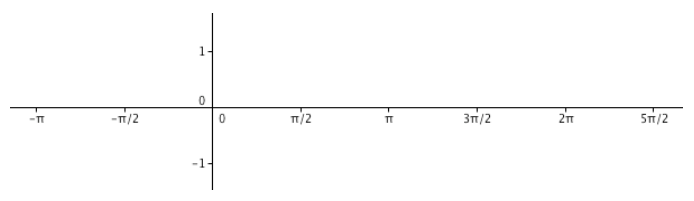
19. $\cot\left(-\frac{2\pi}{3}\right)$

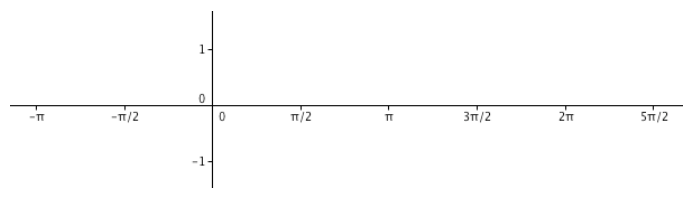
Rewrite in terms of the reference angle.

20. $\sin\left(\frac{5\pi}{3}\right)$

21. $\tan(200^\circ)$

Fill in the tables below for the parent functions of sine and cosine.

22.	Sine	
Equation:	$y = \sin x$	
Domain:		
Range:		
Period:		
Odd/Even?		
Symmetry?		

23.	Cosine	
Equation:	$y = \cos x$	
Domain:		
Range:		
Period:		
Odd/Even?		
Symmetry?		

Find the Arc length and area of the sector with the given angle and radius or diameter.

24. $r = 5\text{cm}, \theta = 225^\circ$

25. $d = 14\text{in}, \theta = \frac{3\pi}{7}$

Find the missing information.

26. $S = 21\pi \text{ ft}, r = 15\text{ft}, \theta = \underline{\hspace{2cm}}$

27. $A = 9\pi \text{ m}^2, \theta = \frac{\pi}{2}, r = \underline{\hspace{2cm}}$

PART II – CALCULATOR: Round all answers to three decimal places.

Evaluate.

28.

$\sin(59^\circ)$

29.

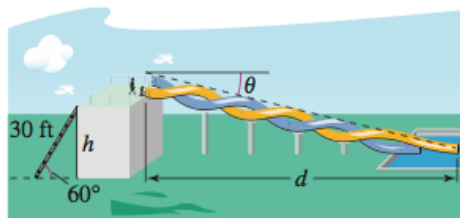
$\csc(59)$

30. An escalator 152 feet in length rises to a platform and makes a 30° angle with the ground. Find the horizontal distance the escalator travels.

31. A train travels 3.5 kilometers on an inclined hill. The angle of inclination is 3° . What is the vertical rise of the train in that distance?

32. The legs of an isosceles triangle are each 21 cm long the angle between them has a measure of 52° . What is the length of the base of the triangle?

33. The designers of a water park are creating a new slide and have sketched some preliminary drawings. The length of the ladder is 30 feet, and its angle of elevation is 60° .

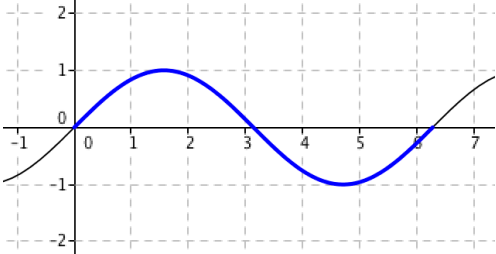


- Find the height of the side, h .
- What does θ represent?

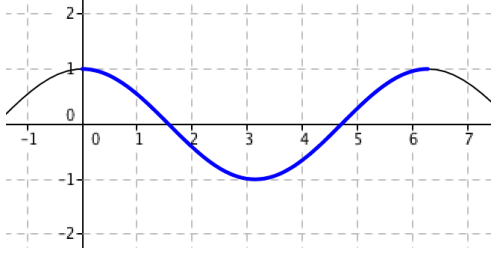
ANSWERS

1. $\frac{7\pi}{9}, -\frac{29\pi}{9}$	2. $265^\circ, -95^\circ$	3. $3 \cdot \frac{\pi}{12}$	4. $-\frac{11\pi}{4}$		
5. 260°	6. -108°	7. $\frac{2\pi}{7}$	8. 58.8°		
9. $\sin\theta = -\frac{2\sqrt{29}}{29}$ $\cos\theta = -\frac{5\sqrt{29}}{29}$ $\tan\theta = \frac{2}{5}$ $\csc\theta = -\frac{\sqrt{29}}{2}$ $\sec\theta = -\frac{\sqrt{29}}{5}$ $\cot\theta = \frac{5}{2}$					
10. 0	11. $\frac{-\sqrt{3}}{2}$	12. $\sqrt{3}$	13. undefined	14. $\sqrt{2}$	15. $-\sqrt{3}$
16. $\frac{\sqrt{3}}{2}$	17. 0	18. 1	19. $\frac{\sqrt{3}}{3}$	20. $-\sin\frac{\pi}{3}$	21. $\tan 20^\circ$

22.

	Sine	
Equation:	$y = \sin x$	
Domain:	$(-\infty, \infty)$	
Range:	$[-1, 1]$	
Period:	2π	
Odd/Even?	Odd	
Symmetry?	Origin	

23.

	Coine	
Equation:	$y = \cos x$	
Domain:	$(-\infty, \infty)$	
Range:	$[-1, 1]$	
Period:	2π	
Odd/Even?	Even	
Symmetry?	y-axis	

24. $\frac{25\pi}{4} \text{ cm}; \frac{125\pi}{8} \text{ cm}^2$

25. $3\pi \text{ in}; \frac{21\pi}{2} \text{ in}^2$

26. $\frac{7\pi}{5}$

27. $6m$

28. 0.857	29. 1.571	30. 131.636 ft	31. 0.183 km	32. 18.412 cm	33a. 25.981 ft 33b. angle of depression from the top of the slide to the ground
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