



**CURRICULUM AND INSTRUCTIONAL SERVICES
MATHEMATICS COMMON ASSESSMENT REVIEW
MATH ANALYSIS 351012**

Name _____ School _____

Multiple Choice

Identify the letter of the choice that best completes the statement or answers the question.

_____ 1. For a circle of radius 3 feet, find the arc length s subtended by a central angle of 12° .

A. $s = \frac{1}{10} \pi$ feet

C. $s = \frac{1}{5} \pi$ feet

B. $s = \frac{2}{5} \pi$ feet

D. $s = \frac{4}{5} \pi$ feet

_____ 2. Find the area of a sector with a central angle of 57° and a radius of 15.1 millimeters. Round to the nearest tenth.

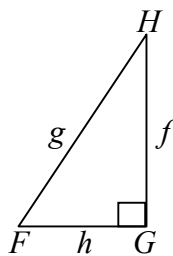
A. 30 mm^2

C. 7.5 mm^2

B. 226.8 mm^2

D. 113.4 mm^2

_____ 3. If $g = 27$ and $F = 54^\circ$, find h . Round to the nearest tenth



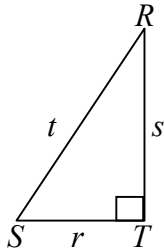
A. $h = 14.9$

C. $h = 18.9$

B. $h = 15.9$

D. $h = 16.9$

_____ 4. If $r = 21.1$ and $s = 31.3$, find R . Round to the nearest tenth



A. $R = 34.0^\circ$

C. $R = 35.0^\circ$

B. $R = 36.0^\circ$

D. $R = 33.0^\circ$

_____ 5. A ski slope at a mountain has an angle of elevations of 19.8° . The vertical height of the slope is 1400 feet. How long is the ski slope (to the nearest foot)?

A. 1488 ft.

C. 4133 ft.

B. 474 ft.

D. 3889 ft.

_____ 6. If the Smith family deposits \$9,000 in a savings account at 7.25% interest compounded continuously, how much will be in the account after 20 years?

A. \$39,652.92

C. \$36,491.23

B. \$38,368.03

D. \$37,784.02

_____ 7. Solve for x .

$$3^x = 16$$

A. .575

C. 3.612

B. .727

D. 2.524

_____ 8. $e^{\frac{-x}{5}} = 4.2$

A. $-.174$

C. -3.045

B. -7.175

D. $-.287$

_____ 9. $\log_6 94 = x$

A. 0.39

C. 1.19

B. 0.33

D. 2.54

_____ 10. Find the least positive angle measurement that is coterminal with -170° .

A. 195°

C. 190°

B. 192°

D. 200°

_____ 11. Change $\frac{13\pi}{20}$ radians to degree measure.

A. 137°

C. 107°

B. 127°

D. 117°

_____ 12. Change 80° to radian measure in terms of π .

A. $\frac{8}{9}\pi$

C. $\frac{4}{9}\pi$

B. $\frac{2}{9}\pi$

D. $\frac{8}{27}\pi$

_____ 13. Find the six trig values given the point with coordinates $(-3, 4)$ lies on the terminal side of the angle.

$\sin \theta$ _____

$\csc \theta$ _____

$\cos \theta$ _____

$\sec \theta$ _____

$\tan \theta$ _____

$\cot \theta$ _____

_____ 14. $\cos \frac{7\pi}{2}$

A. 0

B. -1

C. undefined

D. 1

_____ 15. $\sec 330^\circ$

A. $\frac{2\sqrt{3}}{3}$

B. $-\frac{2\sqrt{3}}{3}$

C. 2

D. -2

_____ 16. $\csc \frac{-3\pi}{4}$

A. $\frac{\sqrt{2}}{2}$

B. $\sqrt{2}$

C. $-\sqrt{2}$

D. $-\frac{\sqrt{2}}{2}$

_____ 17. $\tan\left(-\frac{\pi}{6}\right)$

A. $-\sqrt{3}$

B. $-\frac{\sqrt{3}}{3}$

C. $\frac{\sqrt{3}}{3}$

D. $\sqrt{3}$

_____ 18. $\tan(-90^\circ)$

A. 1

B. -1

C. 0

D. undefined

For problems 19-21: Solve the equation if $0^\circ \leq x \leq 360^\circ$.

_____ 19. $\sin x = -\frac{1}{2}$

A. $210^\circ, 330^\circ$

C. $150^\circ, 210^\circ$

B. $240^\circ, 300^\circ$

D. $225^\circ, 315^\circ$

_____ 20. $\cot x = 1$

A. $45^\circ, 225^\circ$

C. $0^\circ, 360^\circ$

B. $135^\circ, 225^\circ$

D. 90°

_____ 21. $\cos x = 0$

A. $0^\circ, 360^\circ$

C. $0^\circ, 180^\circ$

B. 90°

D. $90^\circ, 270^\circ$

_____ 22. If $\cos \theta = -\frac{3}{5}$ and θ terminates in the third quadrant, find the exact value of $\tan \theta$.

A. $-\frac{4}{5}$

B. $\frac{4}{3}$

C. $\frac{3}{4}$

D. $-\frac{5}{4}$

_____ 23. Find $\csc x$ if $2 \cos x \tan x = 1$. (Simplify the left side of the equation.)

A. $\sqrt{3}$

B. 1

C. 2

D. $\sqrt{2}$

_____ 24. Find the value of $\sin^{-1}(1)$.

A. 0°

C. 180°

B. 270°

D. 90°

_____ 25. Find the value of $\tan\left(\cos^{-1}\left(-\frac{1}{2}\right)\right)$.

A. $\frac{\sqrt{3}}{3}$

C. $-\frac{\sqrt{3}}{3}$

B. $\sqrt{3}$

D. $-\sqrt{3}$

_____ 26. Write an equation of the cosine function with amplitude 2 and period of 6π .

A. $y = \pm 2 \cos\left(\frac{1}{6}x\right)$

C. $y = \pm \frac{1}{2} \cos\left(\frac{1}{3}x\right)$

B. $y = \pm \frac{1}{2} \cos\left(\frac{1}{6}x\right)$

D. $y = \mp 2 \cos\left(\frac{1}{3}x\right)$

_____ 27. Find the exact value of $\sin 75^\circ$.

A. $\frac{\sqrt{6} + \sqrt{2}}{4}$

B. $\frac{\sqrt{6}}{4}$

C. $-\frac{1}{2}$

D. $\frac{\sqrt{2}}{4}$

_____ 28. If α and β are the measures of two first quadrant angles and $\sin \alpha = \frac{3}{5}$ and

$\sin \beta = \frac{12}{13}$, find $\sin(\alpha + \beta)$.

A. $\frac{33}{65}$

B. $\frac{51}{65}$

C. $\frac{21}{65}$

D. $\frac{63}{65}$

_____ 29. Solve $2 \cos x + 1 = 0$ for $0^\circ \leq x \leq 180^\circ$

A. 120°

B. 60°

C. 30°

D. 150°

_____ 30. Solve $\tan x \csc x + 2 \tan x = 0$ for all real values of x .

A. $0 + \pi\kappa, \frac{\pi}{3} + 2\pi\kappa$

C. $0 + 2\pi\kappa, \frac{5\pi}{6} + 2\pi\kappa$

B. $0 + \pi\kappa, \frac{7\pi}{6} + 2\pi\kappa, \frac{11\pi}{6} + 2\pi\kappa$

D. $0 + \pi\kappa, \frac{\pi}{6} + 2\pi\kappa, \frac{11\pi}{6} + 2\pi\kappa$

_____ 31. Solve for x .

$$\frac{1}{3} \log_5 64 + \frac{1}{4} \log_5 16 = \log_5 x$$

_____ 32. Solve for x .

$$\log_8 3 = \log_8 27 - \log_8 x$$

Simplify.

33. $8^{-\frac{5}{3}}$

_____ A. -32

C. -10

B. $\frac{1}{10}$

D. $\frac{1}{32}$

34. $(25x^8)^{\frac{1}{2}}$

_____ A. $5x^4$

C. $25x^6$

B. $25x^4$

D. $5x^6$

_____ 35. $\sqrt{32x^4y^7}$

A. $4x^2y^3\sqrt{2}$

C. $4x^2y^3\sqrt{2y}$

B. $4xy^3\sqrt{2y}$

D. $4xy^3\sqrt{2}$

_____ 36. Evaluate the expression $\log_4\left(\frac{1}{256}\right)$.

A. -4

C. 4

B. $-\frac{1}{4}$

D. $\frac{1}{4}$

_____ 37. Evaluate the expression $\log_{32} 8$.

A. $\frac{5}{3}$

C. $\frac{3}{5}$

B. $-\frac{5}{3}$

D. $-\frac{3}{5}$

Solve for x. Check for extraneous solutions.

_____ 38. $\log_4 x + \log_4 (x + 6) = 2$

A. -8

C. 2

B. $-8, 2$

D. $8, -2$

_____ 39. $\log_5 x = 3$

A. $\sqrt[2]{5}$

C. $\sqrt[3]{5}$

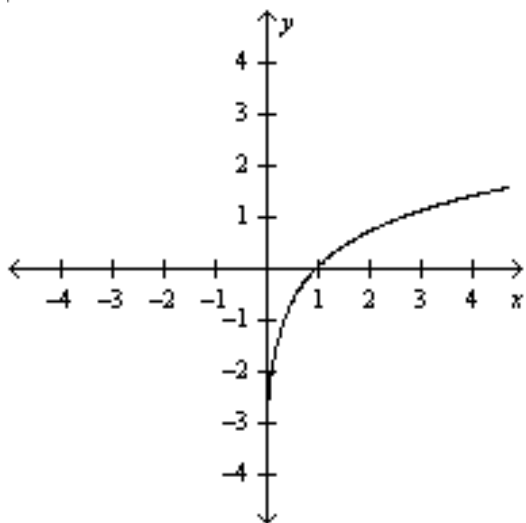
B. 125

D. 243

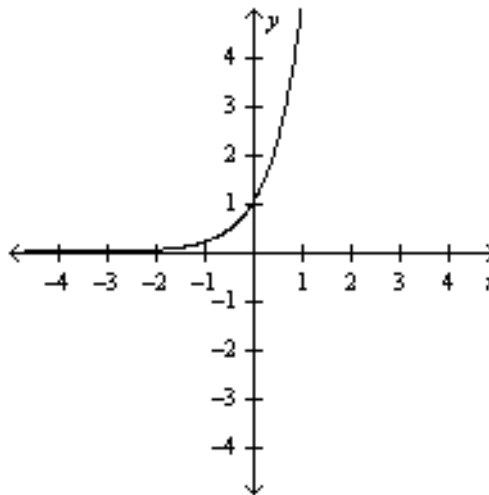
Matching

Match the graphs below to the correct equation.

A.



B.



40. $f(x) = 4^x$ _____

41. $f(x) = \log x$ _____

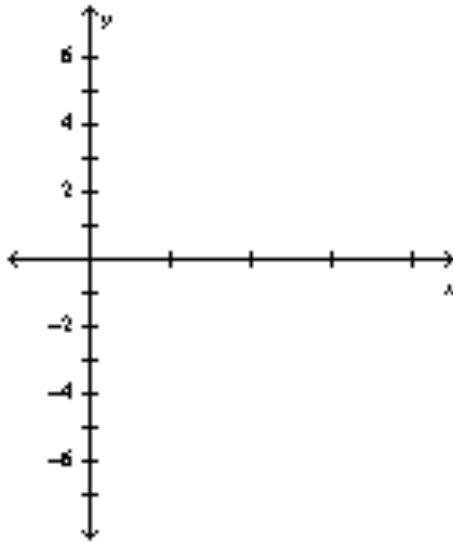
Short Answer

42. Simplify $\tan x(\cot x - \cos x \sin x)$

43. Verify that $\frac{\sec x}{\csc x} = \tan x$ is an identity.

44. Verify that $\cos(\pi - \theta) = -\cos \theta$ is an identity.

45. State the amplitude, period, phase shift, and vertical shift of the function: $y = -3\cos\frac{1}{3}\theta$ Then graph the function.



Amp. _____

Period _____

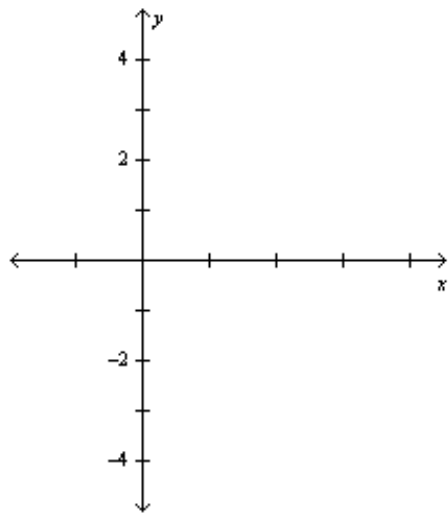
Scale _____

P.S. _____

V.S. _____

46. State the amplitude, period, phase shift, and vertical shift for the function. Then graph the function.

$$y = 4 \sin\left(\theta + \frac{\pi}{2}\right)$$



Amp. _____

Period _____

Scale _____

P.S. _____

V.S. _____

47. $\tan\theta = \frac{12}{5}$, $\pi \leq \theta \leq \frac{3\pi}{2}$

Find: $\sin 2\theta$, $\cos 2\theta$, $\tan 2\theta$

48. Use a half-angle identity to find each exact value.

a. $\sin 165^\circ$

b. $\cos \frac{5\pi}{8}$

c. $\tan \frac{\pi}{8}$