

Review for Exam 3

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Find a positive angle and a negative angle that are coterminal to the given angle.

1) 35° 1) _____
A) $395^\circ; -325^\circ$ B) $125^\circ; -55^\circ$ C) $395^\circ; -145^\circ$ D) $215^\circ; -145^\circ$

2) -22° 2) _____
A) $158^\circ; -202^\circ$ B) $158^\circ; -112^\circ$ C) $338^\circ; -382^\circ$ D) $338^\circ; -202^\circ$

3) $\frac{\pi}{7}$ 3) _____
A) $\frac{8\pi}{7}; -\frac{6\pi}{7}$ B) $\frac{15\pi}{7}; -\frac{\pi}{7}$
C) $\frac{15\pi}{7}; -\frac{13\pi}{7}$ D) $\frac{\pi}{7} + 360^\circ; \frac{\pi}{7} - 360^\circ$

Convert the angle from degree measure to radian measure. Round to the nearest hundredth of a radian when appropriate.

4) 60° 4) _____
A) $\frac{\pi}{3}$ B) $\frac{\pi}{5}$ C) $\frac{\pi}{2}$ D) $\frac{\pi}{4}$

5) -60° 5) _____
A) $-\frac{\pi}{5}$ B) $-\frac{\pi}{2}$ C) $-\frac{\pi}{4}$ D) $-\frac{\pi}{3}$

6) 450° 6) _____
A) 5π B) $-\frac{5\pi}{4}$ C) $-\frac{5\pi}{2}$ D) $\frac{5\pi}{2}$

Convert the angle from radian measure to degree measure. Round to the nearest hundredth of a degree when appropriate.

7) $\frac{9\pi}{6}$ 7) _____
A) 270° B) 160° C) 540° D) $120\pi^\circ$

8) $-\frac{\pi}{4}$ 8) _____
A) -45° B) $-45\pi^\circ$ C) $-\frac{\pi}{4}^\circ$ D) -0.79°

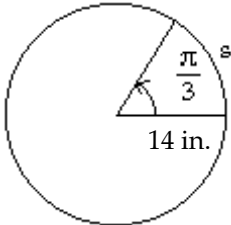
9) $\frac{11\pi}{4}$ 9) _____
A) $65.45\pi^\circ$ B) 495° C) 990° D) 163.64°

Solve the problem.

10) Find the complementary angle to $\theta = 2.8^\circ$. 10) _____
 A) 87.2° B) 92.8° C) 362.8° D) 177.2°

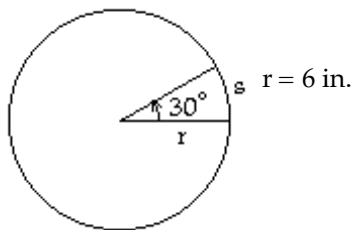
11) Find the supplementary angle to $\theta = 100^\circ$. 11) _____
 A) 280° B) -10° C) 80° D) 460°

12) Use the formula $s = r\theta$ to determine the value of s in the figure. Round to two decimal places. 12) _____



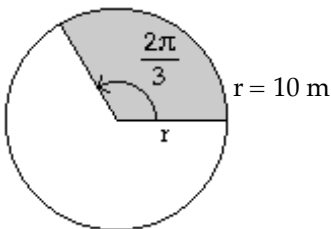
A) 0.07 in. B) 29.32 in. C) 14.66 in. D) 802.14 in.

13) Use the formula $s = r\theta$ to determine the value of s in the figure. Round to two decimal places, if necessary. 13) _____



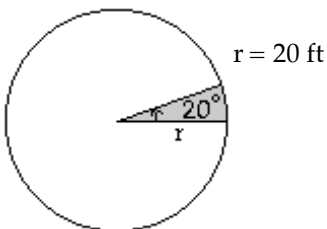
A) 11.46 in. B) 0.52 in. C) 3.14 in. D) 180 in.

14) Find the area of the shaded sector. Round to one decimal place. 14) _____



A) 104.7 m^2 B) 10.5 m^2 C) 21.9 m^2 D) 209.4 m^2

15) Find the area of the shaded sector. Round to one decimal place. 15) _____



A) 139.6 ft^2 B) 69.8 ft^2 C) 0.6 ft^2 D) 3.5 ft^2

Use the given trigonometric function value of θ to find the requested trigonometric function value of the acute angle θ . Rationalize the denominator where necessary.

16) $\sin \theta = \frac{\sqrt{3}}{2}$ Find $\tan \theta$. 16) _____

- A) $\frac{2\sqrt{3}}{3}$ B) 2 C) $\frac{\sqrt{3}}{3}$ D) $\sqrt{3}$

17) $\cot \theta = \frac{12}{5}$ Find $\sin \theta$. 17) _____

- A) $\frac{12}{13}$ B) $\frac{5}{13}$ C) $\frac{13}{12}$ D) $\frac{5}{12}$

Rewrite the expression in terms of $\sin \theta$ and $\cos \theta$.

18) $\tan \theta(\cot \theta - \cos \theta)$ 18) _____

- A) $1 - \sin \theta$ B) $-\sec^2 \theta$ C) 0 D) 1

19) $\frac{\tan \theta}{\sec \theta}$ 19) _____

- A) $\cos^3 \theta$ B) $\sin \theta$ C) $\tan^2 \theta$ D) $\sec^2 \theta$

20) $\cos \theta \tan \theta$ 20) _____

- A) $\cot \theta$ B) $\sin \theta$ C) $\cos \theta$ D) 1

Use the fundamental identities to simplify the expression.

21) $\sin^2 \theta + \tan^2 \theta + \cos^2 \theta$ 21) _____

- A) $\sin \theta$ B) $\cos^3 \theta$ C) $\tan^2 \theta$ D) $\sec^2 \theta$

22) $\frac{\cos^2 \theta}{\sin^2 \theta} + \csc \theta \sin \theta$ 22) _____

- A) 1 B) $\csc^2 \theta$ C) $\sec^2 \theta$ D) $\tan^2 \theta$

Rewrite the expression in terms of $\sin \theta$ and $\cos \theta$.

23) $\frac{\sin \theta \cos \theta}{\tan \theta}$ 23) _____

- A) $\cos^2 \theta$ B) $\sin^2 \theta$ C) $\sin \theta$ D) $\cos \theta$

Use a calculator to find the approximate value of the expression. Round the answer to two decimal places.

24) $\sin 56^\circ$ 24) _____

- A) -0.52 B) -0.61 C) 0.83 D) 0.74

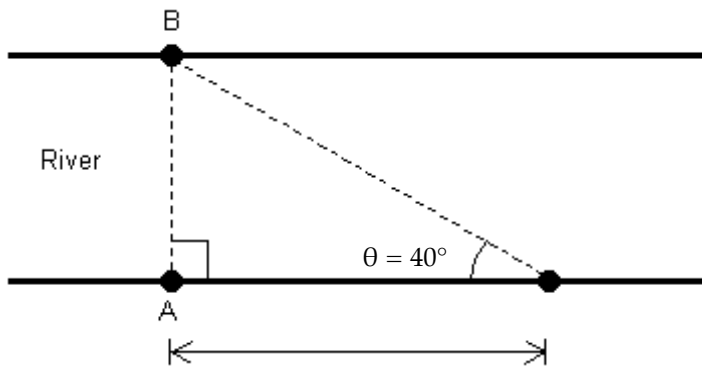
25) $\cos 70^\circ$ 25) _____

- A) 0.49 B) 0.63 C) 0.34 D) 0.48

- 26) $\tan 52^\circ$ 26) _____
 A) -5.94 B) -6.05 C) 1.28 D) 1.39
- 27) $\cos \frac{3\pi}{10}$ 27) _____
 A) 1.08 B) 0.51 C) 1.00 D) 0.59

Solve the problem.

- 28) Find the height of a pine tree that casts a 43-foot shadow on the ground assuming that the angle of elevation from the point on the ground at the tip of the shadow to the sun is 63° . Round your answer to the nearest foot. 28) _____
 A) 20 ft B) 84 ft C) 22 ft D) 38 ft
- 29) A kite is currently flying at an altitude of 12 meters above the ground. If the angle of elevation from the ground to the kite is 33° , find the length of the kite string to the nearest meter. 29) _____
 A) 7 m B) 14 m C) 18 m D) 22 m
- 30) A conservation officer needs to know the width of a river in order to set instruments correctly for a study of pollutants in the river. From point A, the conservation officer walks 90 feet downstream and sights point B on the opposite bank to determine that $\theta = 40^\circ$ (see figure). How wide is the river? 30) _____



- A) 76 ft B) 58 ft C) 117 ft D) 107 ft

A point on the terminal side of angle θ is given. Find the exact value of the indicated trigonometric function.

- 31) (12, 16) Find $\sin \theta$. 31) _____
 A) $\frac{4}{5}$ B) $\frac{4}{3}$ C) $\frac{3}{4}$ D) $\frac{3}{5}$
- 32) (18, 24) Find $\cos \theta$. 32) _____
 A) $\frac{3}{5}$ B) $\frac{4}{3}$ C) $\frac{3}{4}$ D) $\frac{4}{5}$
- 33) (-20, 48) Find $\sin \theta$. 33) _____
 A) $-\frac{12}{13}$ B) $\frac{12}{13}$ C) $-\frac{5}{13}$ D) $\frac{5}{13}$

34) $(-4, -3)$ Find $\sec \theta$. 34) _____
 A) $-\frac{5}{4}$ B) $\frac{5}{3}$ C) $\frac{3}{4}$ D) $-\frac{4}{5}$

35) $(-5, 8)$ Find $\tan \theta$. 35) _____
 A) $-\frac{5}{9}$ B) $-\frac{8}{5}$ C) $-\frac{5}{8}$ D) $\frac{8}{9}$

Name the quadrant in which the angle θ lies.

36) $\tan \theta > 0, \sin \theta < 0$ 36) _____
 A) I B) II C) III D) IV

37) $\sin \theta > 0, \cos \theta < 0$ 37) _____
 A) I B) II C) III D) IV

38) $\cot \theta < 0, \cos \theta > 0$ 38) _____
 A) I B) II C) III D) IV

39) $\sin \theta > 0, \cos \theta > 0$ 39) _____
 A) I B) II C) III D) IV

Find the reference angle of the given angle.

40) 126° 40) _____
 A) 64° B) 36° C) 54° D) 46°

41) 391° 41) _____
 A) 59° B) 121° C) 31° D) 149°

42) -11° 42) _____
 A) 101° B) 11° C) 79° D) 169°

Use the reference angle to find the exact value of the expression. Do not use a calculator.

43) $\sin 855^\circ$ 43) _____
 A) $-\frac{\sqrt{2}}{2}$ B) $-\frac{1}{2}$ C) $\frac{\sqrt{2}}{2}$ D) $\frac{1}{2}$

44) $\tan 390^\circ$ 44) _____
 A) $\sqrt{3}$ B) $\frac{\sqrt{3}}{2}$ C) $\frac{\sqrt{3}}{3}$ D) $-\sqrt{3}$

45) $\sin \frac{4\pi}{3}$ 45) _____
 A) $-\frac{\sqrt{3}}{2}$ B) $-\frac{1}{2}$ C) -1 D) $\frac{\sqrt{3}}{2}$

Find the exact value of the indicated trigonometric function of θ .

46) $\sec \theta = \frac{9}{4}$, θ in quadrant IV Find $\tan \theta$.

46) _____

A) $-\frac{\sqrt{65}}{4}$

B) $-\frac{\sqrt{65}}{9}$

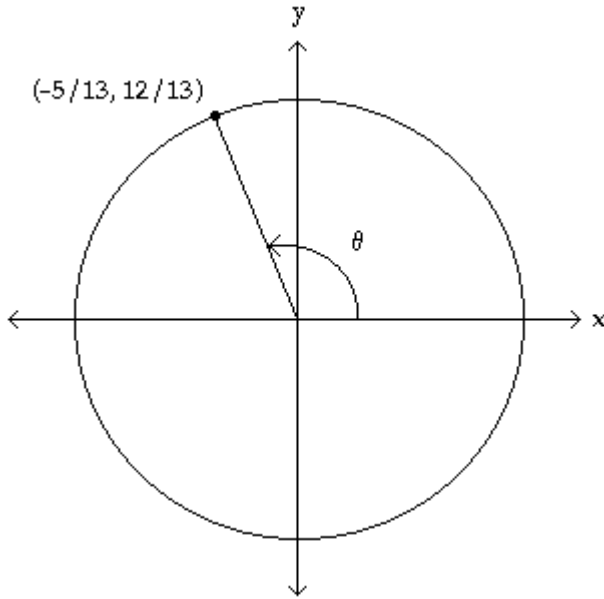
C) $-\frac{9}{4}$

D) $-\sqrt{65}$

The figure shows angle θ in standard position with its terminal side intersecting the unit circle. Evaluate $\sin \theta$ and $\cos \theta$.

47)

47) _____



A) $\sin \theta = \frac{12}{13}$, $\cos \theta = -\frac{5}{13}$

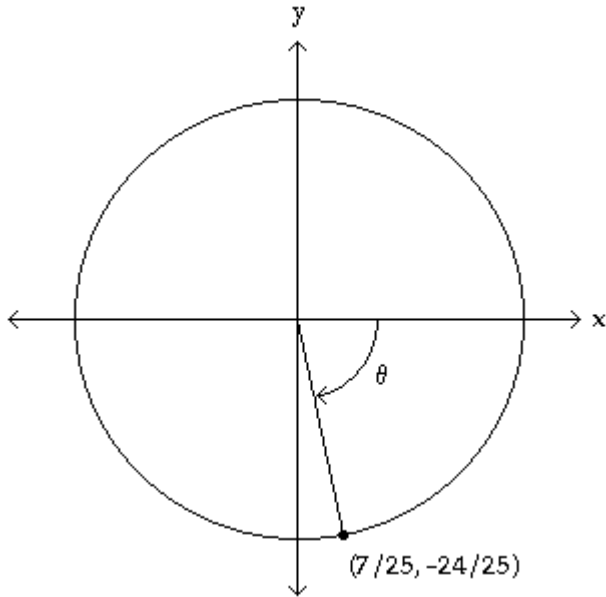
B) $\sin \theta = -\frac{5}{13}$, $\cos \theta = \frac{12}{13}$

C) $\sin \theta = \frac{13}{12}$, $\cos \theta = -\frac{13}{5}$

D) $\sin \theta = -\frac{12}{5}$, $\cos \theta = -\frac{5}{12}$

48)

48) _____



A) $\sin \theta = \frac{7}{25}, \cos \theta = -\frac{24}{25}$

B) $\sin \theta = -\frac{24}{25}, \cos \theta = \frac{7}{25}$

C) $\sin \theta = -\frac{25}{24}, \cos \theta = \frac{25}{7}$

D) $\sin \theta = -\frac{24}{7}, \cos \theta = -\frac{7}{24}$

Find the exact value. If the value of the function is not defined, write undefined.

49) $\sec(-180^\circ)$

A) Undefined

B) 1

C) 0

D) -1

49) _____

50) $\cos 270^\circ$

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

B) Undefined

C) 0

D) -1

50) _____

51) $\cot 270^\circ$

A) 0

B) $\frac{\sqrt{2}}{2}$

C) Undefined

D) -1

51) _____

52) $\sec(-90^\circ)$

A) 0

B) $\frac{2\sqrt{3}}{3}$

C) -1

D) Undefined

52) _____

53) $\sec(-810^\circ)$

A) Undefined

B) $\frac{2\sqrt{3}}{3}$

C) -1

D) 0

53) _____

54) $\sin 900^\circ$

A) -1

B) Undefined

C) 1

D) 0

54) _____

Find the exact value of the expression.

55) $\sin^{-1} \frac{\sqrt{2}}{2}$ 55) _____

- A) $\frac{2\pi}{3}$ B) $\frac{\pi}{4}$ C) $\frac{\pi}{3}$ D) $\frac{3\pi}{4}$

56) $\cos^{-1} \frac{\sqrt{3}}{2}$ 56) _____

- A) $\frac{7\pi}{4}$ B) $\frac{\pi}{4}$ C) $\frac{11\pi}{6}$ D) $\frac{\pi}{6}$

57) $\sin^{-1} (-0.5)$ 57) _____

- A) $\frac{\pi}{6}$ B) $\frac{7\pi}{3}$ C) $-\frac{\pi}{6}$ D) $\frac{\pi}{3}$

58) $\tan^{-1} (1)$ 58) _____

- A) $\frac{5\pi}{4}$ B) $\frac{7\pi}{4}$ C) $\frac{3\pi}{4}$ D) $\frac{\pi}{4}$

59) $\tan^{-1} \frac{\sqrt{3}}{3}$ 59) _____

- A) $\frac{\pi}{3}$ B) $\frac{\pi}{4}$ C) $\frac{4\pi}{3}$ D) $\frac{\pi}{6}$

Use a calculator to find the value of the expression rounded to two decimal places.

60) $\sin^{-1} (-0.6)$ 60) _____
A) 2.21 B) -0.64 C) 126.87 D) -36.87

61) $\cos^{-1} (-0.4)$ 61) _____
A) 113.58 B) -23.58 C) 1.98 D) -0.41

62) $\tan^{-1} (-2.9)$ 62) _____
A) -70.97 B) -19.03 C) -1.24 D) -0.33

63) $\sin^{-1} \left(-\frac{2}{3} \right)$ 63) _____
A) 2.30 B) -41.81 C) -0.73 D) 131.81

64) $\cos^{-1} \left(-\frac{\sqrt{6}}{5} \right)$ 64) _____
A) -29.33 B) -0.51 C) 119.33 D) 2.08

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Verify the identity.

65) $\csc^2 x - \cos x \sec x = \cot^2 x$ 65) _____

66) $\frac{1 + \csc x}{\sec x} = \cos x + \cot x$ 66) _____

67) $\tan^2 x = \sec^2 x - \sin^2 x - \cos^2 x$ 67) _____

68) $(1 - \cos x)(1 + \cos x) = \sin^2 x$ 68) _____

69) $(\sin x)(\tan x \cos x - \cot x \cos x) = 1 - 2 \cos^2 x$ 69) _____

70) $(\tan x + 1)^2 + (\tan x - 1)^2 = 2 \sec^2 x$ 70) _____

71) $\tan x(\csc x - \sin x) = \cos x$ 71) _____

72) $(1 + \tan^2 x)(1 - \sin^2 x) = 1$ 72) _____

73) $\sec x + \tan x = \frac{\cos x}{1 - \sin x}$ 73) _____

74) $\frac{\cos^2 x}{1 - \sin x} = 1 + \sin x$ 74) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Find the exact value of the expression.

75) $\cos(60^\circ + 45^\circ)$ 75) _____
A) $\frac{\sqrt{2} - \sqrt{6}}{4}$ B) $\frac{\sqrt{6} - \sqrt{2}}{4}$ C) $\frac{\sqrt{2} + 2\sqrt{3}}{4}$ D) $\frac{2\sqrt{2} + \sqrt{6}}{4}$

76) $\cos(45^\circ - 30^\circ)$ 76) _____
A) $\frac{\sqrt{6} - \sqrt{2}}{2}$ B) $\frac{\sqrt{2} + \sqrt{6}}{4}$ C) $\frac{\sqrt{2} + \sqrt{6}}{2}$ D) $\frac{\sqrt{6} - \sqrt{2}}{4}$

77) $\cos\left(\frac{\pi}{3} + \frac{\pi}{4}\right)$ 77) _____
 A) $\frac{\sqrt{2} + 2\sqrt{3}}{4}$ B) $\frac{\sqrt{2} - \sqrt{6}}{4}$ C) $\frac{2\sqrt{2} + \sqrt{6}}{4}$ D) $\frac{\sqrt{6} - \sqrt{2}}{4}$

78) $\sin 75^\circ$ 78) _____
 A) $\frac{\sqrt{2} + \sqrt{6}}{4}$ B) $\frac{\sqrt{6} - \sqrt{2}}{4}$ C) $\frac{\sqrt{2} + 2\sqrt{3}}{4}$ D) $\frac{2\sqrt{2} + \sqrt{6}}{4}$

Use the given information to find the exact value.

79) $\cos A = \frac{1}{3}$, $0 < A < \frac{\pi}{2}$; $\sin B = -\frac{1}{2}$, $\frac{3\pi}{2} < B < 2\pi$ Find $\cos(A + B)$. 79) _____
 A) $\frac{2\sqrt{6} + 1}{6}$ B) $\frac{2\sqrt{6} - 1}{6}$ C) $\frac{\sqrt{3} - 2\sqrt{2}}{6}$ D) $\frac{\sqrt{3} + 2\sqrt{2}}{6}$

80) $\cos A = \frac{1}{3}$, $0 < A < \frac{\pi}{2}$; $\sin B = -\frac{1}{2}$, $\frac{3\pi}{2} < B < 2\pi$ Find $\sin(A - B)$. 80) _____
 A) $\frac{\sqrt{3} + 2\sqrt{2}}{6}$ B) $\frac{2\sqrt{6} + 1}{6}$ C) $\frac{\sqrt{3} - 2\sqrt{2}}{6}$ D) $\frac{2\sqrt{6} - 1}{6}$

Use the appropriate sum or difference identity to write the given expression as a function of x alone.

81) $\tan(x - \pi)$ 81) _____
 A) $\tan x$ B) $\frac{\tan x - \sqrt{3}}{1 + \sqrt{3} \tan x}$ C) $\frac{1 + \sqrt{3} \tan x}{\sqrt{3} - \tan x}$ D) $-\tan x$

82) $\sin(x - \pi)$ 82) _____
 A) $\sin x$ B) $-\sin x$ C) $\cos x$ D) $-\cos x$

83) $\sin\left(\frac{\pi}{2} - x\right)$ 83) _____
 A) $-\sin x$ B) $-\cos x$ C) $\cos x$ D) $\sin x$

Use the information given about the angle θ , to find the exact value of the indicated trigonometric function.

84) $\cos \theta = -\frac{5}{13}$, θ in quadrant II Find $\sin 2\theta$. 84) _____
 A) $\frac{120}{169}$ B) $-\frac{120}{169}$ C) $-\frac{119}{169}$ D) $\frac{119}{169}$

85) $\sin \theta = -\frac{4}{5}$, θ in quadrant IV Find $\sin 2\theta$. 85) _____
 A) $\frac{7}{25}$ B) $-\frac{24}{25}$ C) $-\frac{7}{25}$ D) $\frac{24}{25}$

86) $\sin \theta = -\frac{4}{5}$, θ in quadrant IV Find $\cos 2\theta$.

86) _____

A) $-\frac{7}{25}$

B) $\frac{24}{25}$

C) $\frac{7}{25}$

D) $-\frac{24}{25}$

Answer the question.

87) Find $\cos \theta$ given that $\cos 2\theta = \frac{5}{6}$ and $0 \leq \theta < \frac{\pi}{2}$.

87) _____

A) $\frac{\sqrt{33}}{6}$

B) $\frac{6}{33}$

C) $\frac{\sqrt{33}}{5}$

D) 6

Find the exact value by using a half-angle identity.

88) $\sin 22.5^\circ$

88) _____

A) $-\frac{1}{2} \sqrt{2 - \sqrt{2}}$

B) $\frac{1}{2} \sqrt{2 + \sqrt{2}}$

C) $\frac{1}{2} \sqrt{2 - \sqrt{2}}$

D) $-\frac{1}{2} \sqrt{2 + \sqrt{2}}$

89) $\cos 22.5^\circ$

89) _____

A) $\frac{1}{2} \sqrt{2 + \sqrt{2}}$

B) $\frac{1}{2} \sqrt{2 - \sqrt{2}}$

C) $-\frac{1}{2} \sqrt{2 - \sqrt{2}}$

D) $-\frac{1}{2} \sqrt{2 + \sqrt{2}}$

Simplify.

90) $1 - 2\sin^2 \frac{x}{2}$

90) _____

A) $\sin 2x$

B) $\cos 2x$

C) $\sin x$

D) $\cos x$

Answer the question.

91) Find $\cos \theta$ given that $\sin\left(\frac{\theta}{2}\right) = \frac{3}{7}$ and $0 \leq \theta < \frac{\pi}{2}$.

91) _____

A) $\frac{31}{49}$

B) $\frac{3}{49}$

C) $\frac{29}{49}$

D) $\frac{31}{29}$

Answer Key

Testname: REVIEW FOR EXAM 3

- 1) A
- 2) C
- 3) C
- 4) A
- 5) D
- 6) D
- 7) A
- 8) A
- 9) B
- 10) A
- 11) C
- 12) C
- 13) C
- 14) A
- 15) B
- 16) D
- 17) B
- 18) A
- 19) B
- 20) B
- 21) D
- 22) B
- 23) A
- 24) C
- 25) C
- 26) C
- 27) D
- 28) B
- 29) D
- 30) A
- 31) A
- 32) A
- 33) B
- 34) A
- 35) B
- 36) C
- 37) B
- 38) D
- 39) A
- 40) C
- 41) C
- 42) B
- 43) C
- 44) C
- 45) A
- 46) A
- 47) A
- 48) B
- 49) D

Answer Key

Testname: REVIEW FOR EXAM 3

- 50) C
- 51) A
- 52) D
- 53) A
- 54) D
- 55) B
- 56) D
- 57) C
- 58) D
- 59) D
- 60) B
- 61) C
- 62) C
- 63) C
- 64) D

$$65) \csc^2 x - \cos x \sec x = \csc^2 x - \cos x \cdot \frac{1}{\cos x} = \csc^2 x - 1 = \cot^2 x$$

$$66) \frac{1 + \csc x}{\sec x} = \cos x \left(1 + \frac{1}{\sin x} \right) = \frac{\cos x (\sin x + 1)}{\sin x} = \frac{\cos x \sin x}{\sin x} + \frac{\cos x}{\sin x} = \cos x + \cot x.$$

$$67) \tan^2 x = \sec^2 x - 1 = \sec^2 x - (\sin^2 x + \cos^2 x) = \sec^2 x - \sin^2 x - \cos^2 x.$$

$$68) (1 - \cos x)(1 + \cos x) = 1 - \cos^2 x = \sin^2 x$$

$$69) (\sin x)(\tan x \cos x + \cot x \cos x) = \sin x \left(\frac{\sin x \cos x}{\cos x} - \frac{\cos^2 x}{\sin x} \right) = \sin^2 x - \cos^2 x = (1 - \cos^2 x) - \cos^2 x = 1 - 2 \cos^2 x.$$

$$70) (\tan x + 1)^2 + (\tan x - 1)^2 = \tan^2 x + 2 \tan x + 1 + \tan^2 x - 2 \tan x + 1 = 2(\tan^2 x + 1) = 2 \sec^2 x$$

$$71) \tan x(\csc x - \sin x) = \tan x \cdot \csc x - \tan x \cdot \sin x = \frac{\sin x}{\cos x} \cdot \frac{1}{\sin x} - \frac{\sin x}{\cos x} \cdot \sin x = \frac{1}{\cos x} - \frac{\sin^2 x}{\cos x} = \frac{1 - \sin^2 x}{\cos x} = \frac{\cos^2 x}{\cos x} = \cos x$$

$$72) (1 + \tan^2 x)(1 - \sin^2 x) = \sec^2 x \cdot \cos^2 x = \frac{1}{\cos^2 x} \cdot \cos^2 x = 1$$

$$73) \sec x + \tan x = \frac{1}{\cos x} + \frac{\sin x}{\cos x} = \frac{1 + \sin x}{\cos x} = \frac{1 + \sin x}{\cos x} \cdot \frac{1 - \sin x}{1 - \sin x} = \frac{1 - \sin^2 x}{\cos x(1 - \sin x)} = \frac{\cos^2 x}{\cos x(1 - \sin x)} = \frac{\cos x}{1 - \sin x}$$

$$74) 1 - \frac{\cos^2 x}{1 - \sin x} = 1 - \frac{1 - \sin^2 x}{1 - \sin x} = 1 - \frac{(1 - \sin x)(1 + \sin x)}{1 - \sin x} = 1 - (1 + \sin x) = -\sin x$$

- 75) A
- 76) B
- 77) B
- 78) A
- 79) D
- 80) B
- 81) A
- 82) B
- 83) C

Answer Key

Testname: REVIEW FOR EXAM 3

84) B

85) B

86) A

87) A

88) C

89) A

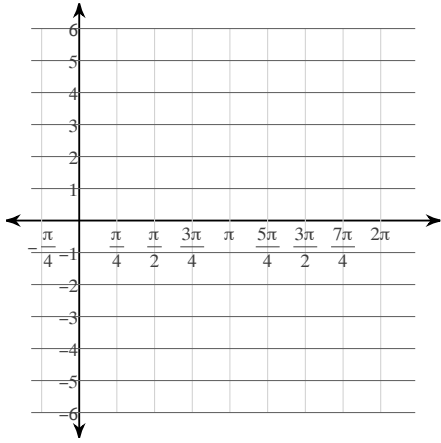
90) D

91) A

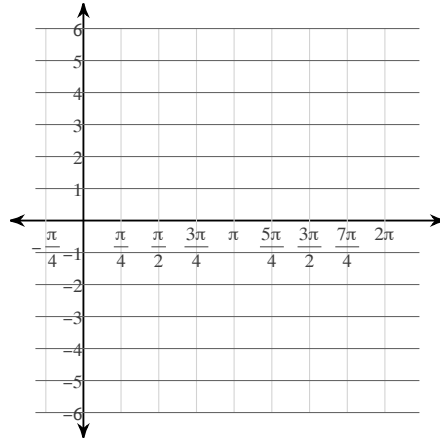
More Graphs of Sine and Cosine

Using radians, find the amplitude and period of each function. Then graph.

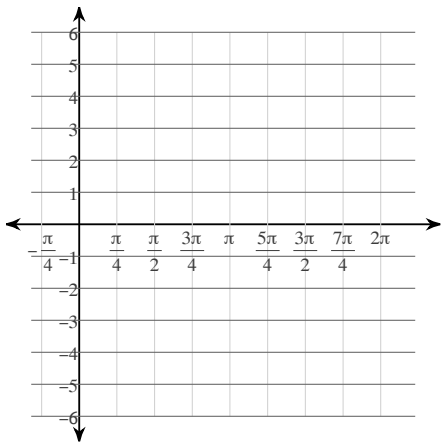
1) $y = 3\sin 2\theta$



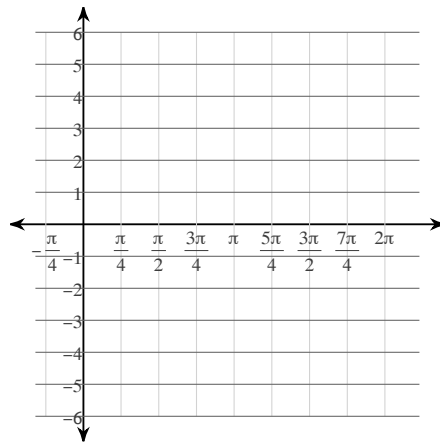
2) $y = 2\cos 2\theta$



3) $y = 2\cos 3\theta$



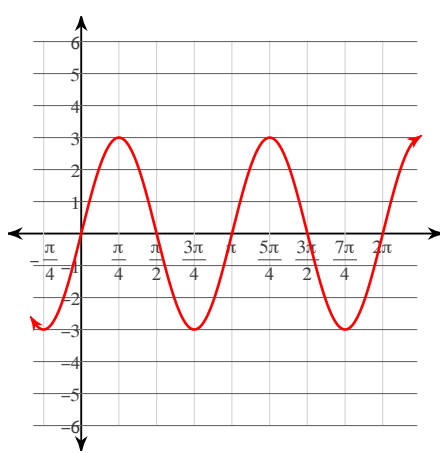
4) $y = 3\sin 4\theta$



More Graphs of Sine and Cosine

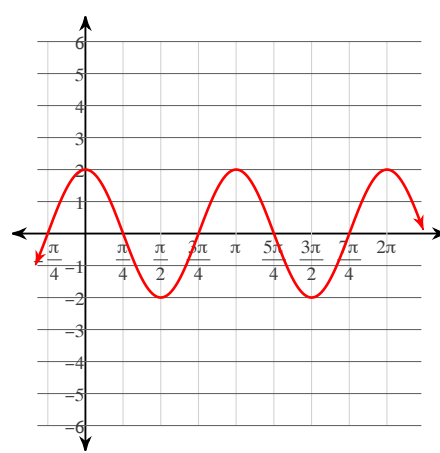
Using radians, find the amplitude and period of each function. Then graph.

1) $y = 3\sin 2\theta$



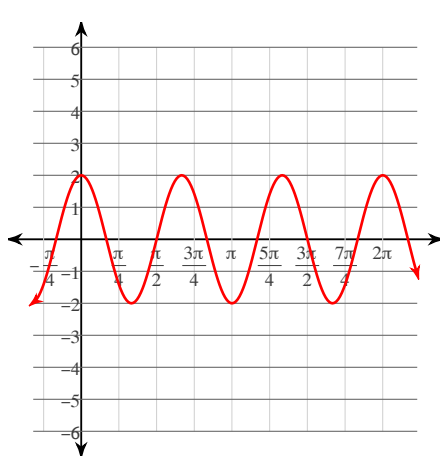
Amplitude: 3
Period: π

2) $y = 2\cos 2\theta$



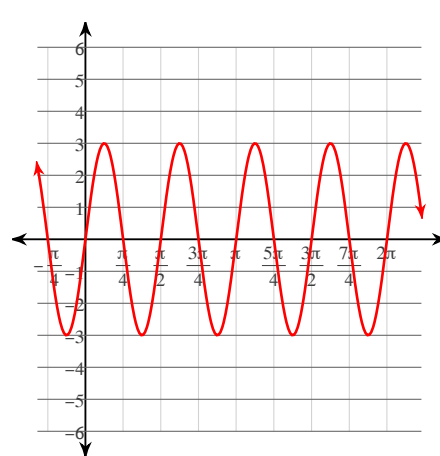
Amplitude: 2
Period: π

3) $y = 2\cos 3\theta$



Amplitude: 2
Period: $\frac{2\pi}{3}$

4) $y = 3\sin 4\theta$

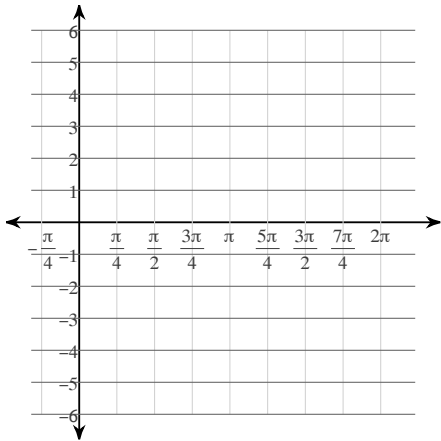


Amplitude: 3
Period: $\frac{\pi}{2}$

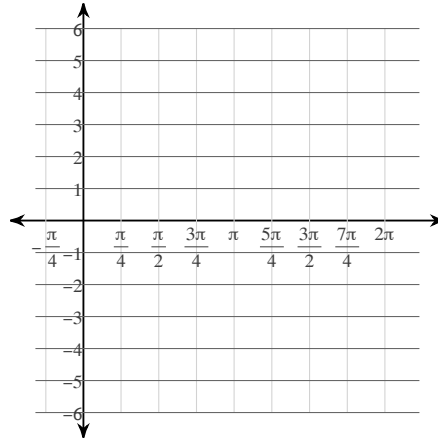
Graph of Tangent

Using radians, find the period of each function. Then graph.

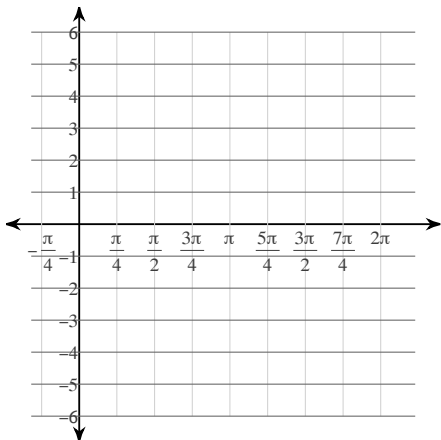
1) $y = \frac{1}{2} \cdot \tan 2\theta$



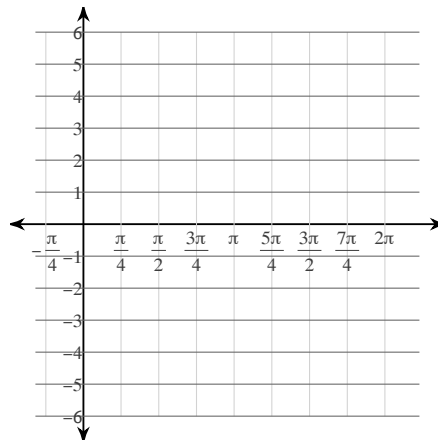
2) $y = 3 \tan \theta$



3) $y = 3 \tan 2\theta$



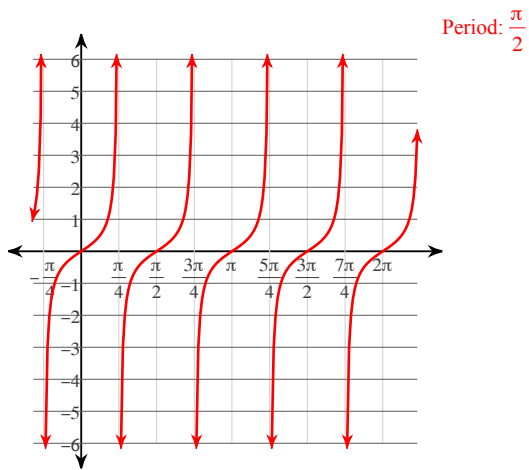
4) $y = 2 \tan 2\theta$



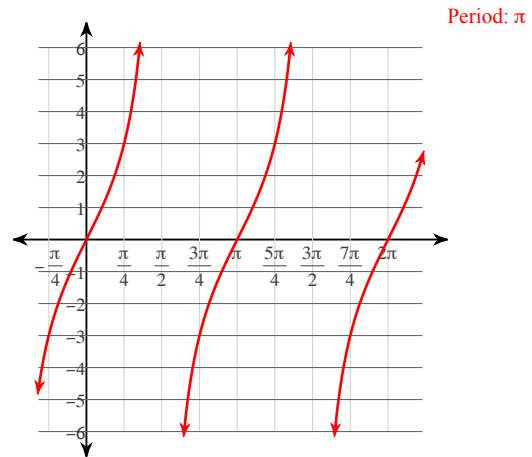
Graph of Tangent

Using radians, find the period of each function. Then graph.

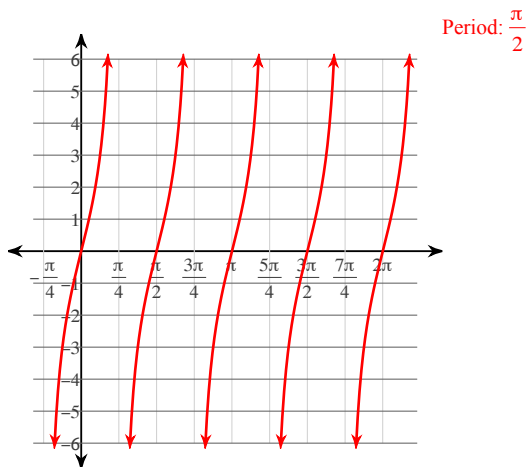
1) $y = \frac{1}{2} \cdot \tan 2\theta$



2) $y = 3 \tan \theta$



3) $y = 3 \tan 2\theta$



4) $y = 2 \tan 2\theta$

