

Algebra 2

Name_____

Practice for Semester 2 Exam

Date_____ Period_____

Find the reference angle.

1) -610°

2) 425°

Convert each degree measure into radians.

3) 570°

4) -495°

Convert each radian measure into degrees.

5) $\frac{5\pi}{6}$

6) $\frac{\pi}{4}$

Find the exact value of each trigonometric function.

7) $\sin 600^\circ$

8) $\cos 675^\circ$

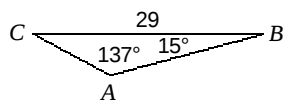
Find the area of each triangle to the nearest tenth.

9) In $\triangle FDE$, $e = 6$ km, $m\angle F = 95^\circ$, $d = 14$ km

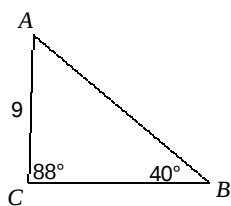
10) In $\triangle XYZ$, $y = 13$ yd, $z = 16$ yd, $m\angle X = 34^\circ$

Find each measurement indicated. Round your answers to the nearest tenth.

11) Find AC



12) Find AB



13) $c = 24.3$ yd, $m\angle B = 130.2^\circ$, $a = 21.5$ yd
Find b

14) $m\angle B = 107.4^\circ$, $c = 19.3$ m, $a = 28.5$ m
Find b

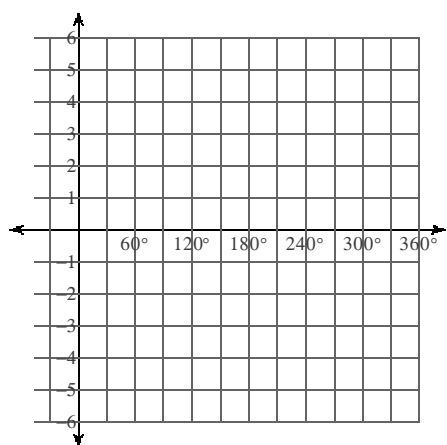
Find a coterminal angle between 0° and 360° .

15) 495°

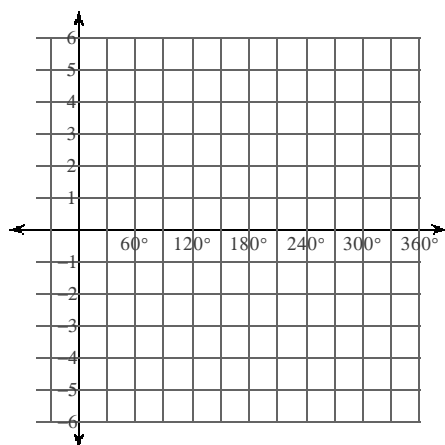
16) -465°

Graph each function using degrees.

17) $y = 2\sin 2q$

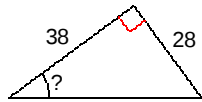


18) $y = 3\cos 4q$

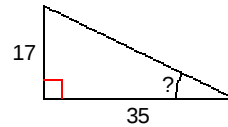


Find the measure of the indicated angle to the nearest degree.

19)



20)



21) A company vehicle was purchased for \$12,500. It depreciated at an average rate of 6% and is now worth \$8600. How many years ago was the vehicle purchased?

22) A condominium purchased for \$85,000 appreciates at an average rate of 5% per year. What is its value in 5 years?

Use the information provided to write the vertex form equation of each parabola.

23) $y = -x^2 + 18x - 85$

24) $y = -16x^2 + 224x - 791$

Use the information provided to write the standard form equation of each circle.

25) Center: $(12, -16)$
Radius: 3

26) Center: $(-10, -9)$
Radius: 8

Use the information provided to write the standard form equation of each ellipse.

27) $4x^2 + 9y^2 - 48x + 18y - 171 = 0$

28) $8x^2 + 29y^2 - 160x - 174y - 99 = 0$

Classify each conic section.

29) $(x - 4)^2 + (y + 2)^2 = 5$

30) $(x - 2)^2 + y^2 = 4$

31) $x = -2(y - 4)^2 - 2$

32) $\frac{(x + 2)^2}{4} - \frac{(y - 1)^2}{9} = 1$

33) $\frac{y^2}{25} - \frac{(x - 3)^2}{4} = 1$

34) $\frac{(x + 1)^2}{36} + \frac{(y - 2)^2}{4} = 1$

Solve each equation.

35) $5^{-2n} = 5^3$

36) $\log_7 (10a + 2) = \log_7 (a^2 + 23)$

Evaluate each expression.

37) $\log_5 25$

38) $\log_2 16$

Rewrite each equation in exponential form.

39) $\log_{196} 14 = \frac{1}{2}$

40) $\log_6 \frac{1}{36} = -2$

Rewrite each equation in logarithmic form.

41) $17^0 = 1$

42) $9^2 = 81$

Expand each logarithm.

43) $\log_6 \sqrt{x \cdot y \cdot z}$

44) $\log_6 \frac{a^6}{b^2}$

45) $\ln (xy^6)^6$

46) $\log_4 \sqrt[3]{8 \cdot 3 \cdot 11}$

Condense each expression to a single logarithm.

47) $3 \log_3 6 + 18 \log_3 11$

48) $6 \log 5 - 6 \log 3$

49) $4 \log_2 u + 4 \log_2 v$

50) $\frac{\log_3 x}{3} + \frac{\log_3 y}{3} + \frac{\log_3 z}{3}$

Solve each equation. Round your answers to the nearest ten-thousandth.

51) $10^p = 78$

52) $e^{x+2} + 2 = 96$

$$53) 10 \cdot e^{-10b} = 46$$

$$54) 6 \cdot 10^{v-9} = 56$$

$$55) e^{-b-8} + 5 = 98$$

$$56) -5 \cdot e^{5-n} = -90$$

$$57) -5 \cdot e^{4-r} = -51$$

$$58) -10^{3x+6} - 5 = -33$$

$$59) -8 \cdot 10^{8n-10} - 2 = -77$$

$$60) -10^{9-9a} - 6 = -27$$

Answers to Practice for Semester 2 Exam (ID: 1)

1) 70°

2) 65°

3) $\frac{19\pi}{6}$

4) $-\frac{11\pi}{4}$

5) 150°

6) 45°

7) $-\frac{\sqrt{3}}{2}$

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

9) 41.8 km^2

10) 58.2 yd^2

11) 11

12) 14

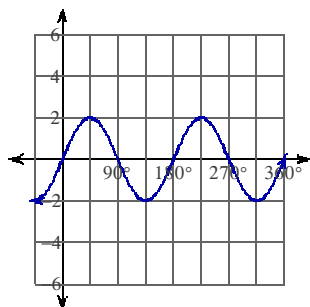
13) 41.6 yd

14) 38.9 m

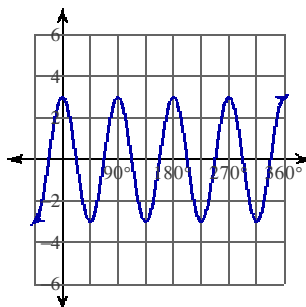
15) 135°

16) 255°

17)



18)



19) 36°

20) 26°

21) 6

22) \$108,484

23) $y = -(x - 9)^2 - 4$

24) $y = -16(x - 7)^2 - 7$

25) $(x - 12)^2 + (y + 16)^2 = 9$

26) $(x + 10)^2 + (y + 9)^2 = 64$

27) $\frac{(x - 6)^2}{81} + \frac{(y + 1)^2}{36} = 1$

28) $\frac{(x - 10)^2}{145} + \frac{(y - 3)^2}{40} = 1$

29) Circle

30) Circle

31) Parabola

32) Hyperbola

33) Hyperbola

34) Ellipse

35) $\left\{ -\frac{3}{2} \right]$

36) $\{7, 3\}$

37) 2

38) 4

39) $196^{\frac{1}{2}} = 14$

40) $6^{-2} = \frac{1}{36}$

41) $\log_{17} 1 = 0$

42) $\log_9 81 = 2$

43) $\frac{\log_6 x}{2} + \frac{\log_6 y}{2} + \frac{\log_6 z}{2}$

44) $6 \log_6 a - 2 \log_6 b$

45) $6 \ln x + 36 \ln y$

46) $\frac{\log_4 8}{3} + \frac{\log_4 3}{3} + \frac{\log_4 11}{3}$

47) $\log_3 (11^{18} \cdot 6^3)$

48) $\log \frac{5^6}{3^6}$

49) $\log_2 (v^4 u^4)$

50) $\log_3 \sqrt[3]{zyx}$

51) 1.8921

52) 2.5433

53) -0.1526

54) 9.97

55) -12.5326

56) 2.1096

57) 1.6776

58) -1.5176

59) 1.3715

60) 0.8531