

SBM 2 Review

Date _____ Period _____

Simplify each expression.

1) $(5x^3 - 7 + 3x^4) + (3x^4 + 4 - 3x^3) - (5x^3 - 2)$

2) $(8v^2 + 8v^3) - (1 - 6v^4 + v^3 + 7v^2)$

Simplify.

3) $2\sqrt{24} + 3\sqrt{54}$

4) $-3\sqrt{45} - 2\sqrt{5}$

5) $-2\sqrt{18} + 2\sqrt{20} - 3\sqrt{20}$

6) $2\sqrt{5} + 2\sqrt{5} - 3\sqrt{20}$

Simplify. Tell if result is a rational or irrational number.

7) $-3\sqrt{20} \cdot 4\sqrt{5}$

8) $2\sqrt{6}(4 + \sqrt{2})$

9) $-\sqrt{12} + 2\sqrt{3}$

10) $2(\pi + 7)$

Factor each completely.

11) $2k^2 + 22k + 56$

12) $3r^2 + 3r - 270$

13) $p^3 - 2p^2$

14) $-6b^2 + 6$

15) $7x^2 - 36x + 5$

16) $7r^3 - 33r^2 - 10r$

17) $a^2 + 6a - 40$

18) $n^2 - 11n + 24$

19) $p^6 - 9s^2$

20) $6x^2 - 24y^8$

Solve each equation by factoring.

21) $x^2 = -2 + 3x$

22) $2r^2 - 24 = -2r$

23) $2x^2 + 30 = 17x$

24) $3n^2 - 20 = 11n$

Solve each equation by completing the square.

25) $v^2 + 10v - 51 = 5$

Solve each equation with the quadratic formula.

26) $x^2 - 5x = -1$

27) $11k^2 = -9k - 1$

Write a quadratic function with the following roots.

28) 0, -6

29) $\frac{2}{3}, 4$

Find the x-intercepts, y-intercept, end behavior, AOS, and vertex of the following quadratic functions.

30) $y = -2x^2 - 12x - 14$

31) $y = x^2 + 2x - 1$

Give the direction, AOS, vertex, max/min, domain and range of the following functions.

32) $y = -(x + 1)^2 - 4$

33) $y = \frac{1}{2}(x - 2)^2 + 1$

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

34) Center: $\left(-7, -\frac{11}{2}\right)$
Radius: 4

35) Center: $(2, -4)$
Radius: $3\sqrt{11}$

Find the center and radius of the circle given in general form.

36) $x^2 + y^2 - 16x - 30y + 285 = 0$

37) $x^2 + y^2 + 6x + 2y - 14 = 0$

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

38) Center: $(12, -7)$
Point on Circle: $(18, -9)$

39) Ends of a diameter: $(2, 3)$ and $(4, 9)$

40) Center: $(-10, 9)$
Area: 45π

41) Center: $(-9, -9)$
Circumference: 6π

Does the given point lie on the circle? Yes or No

42) Center: $(-11, 15)$
Radius: 2
Point: $(-13, 17)$

43) Center: $(-12, 3)$
Radius: $\sqrt{13}$
Point: $(-14, 6)$

**Find the volume of each figure. Round your answers to the nearest hundredth, if necessary.
Leave your answers in terms of π for answers that contain π .**

44) A sphere with a diameter of 16 m.

45) A rectangular pyramid of height 11 km
measuring 5 km and 9 km along the base.

46) A cylinder with a radius of 3 mi and a height
of 11 mi.

Find the area of each circle.

47) diameter = 18 km

48) circumference = 24π cm

Find the diameter of each circle.

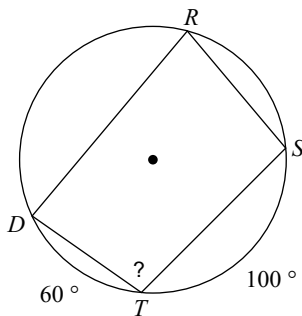
49) area = 64π m²

Find the circumference of each circle.

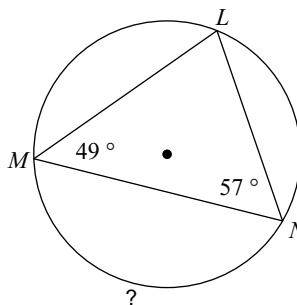
50) area = 49π in²

Find the measure of the arc or angle indicated.

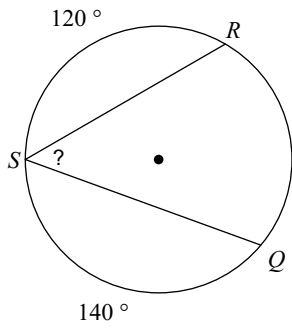
51)



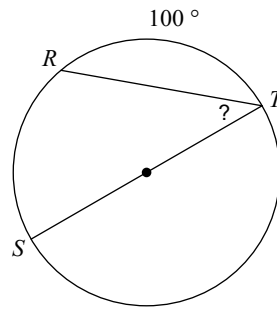
52)



53)

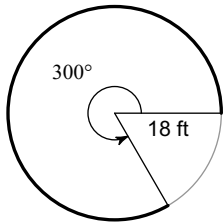


54)

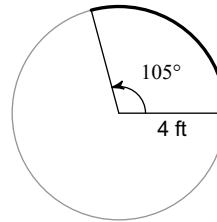


Find the length of each arc.

55)

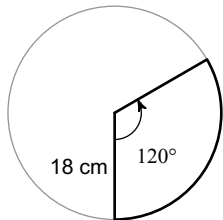


56)

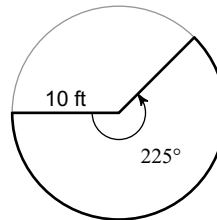


Find the area of each sector.

57)

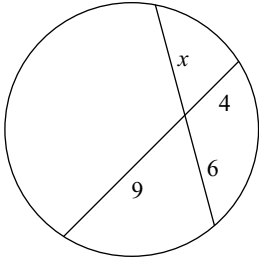


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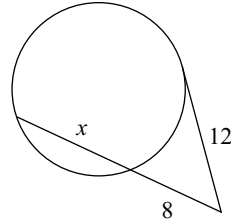


Solve for x . Assume that lines which appear tangent are tangent.

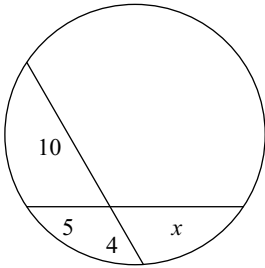
59)



60)



61)



62)

