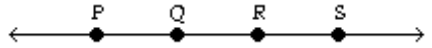
MGF 1106 Worksheet test 3

Name_____

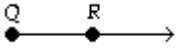
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

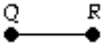
Give the symbol that represents the portion of the line named and draw a figure showing just the portion named.

1) 

1) _____

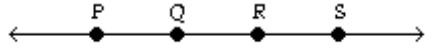
Line segment QR

A) $\overrightarrow{QR}$


B) $\overline{QR}$


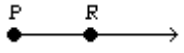
C) $\overline{QR}$

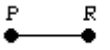

D) $\overleftrightarrow{QR}$

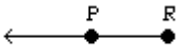

2) 

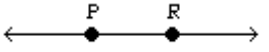
2) _____

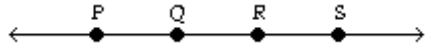
Ray RP

A) $\overrightarrow{PR}$


B) $\overrightarrow{RP}$


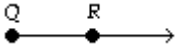
C) $\overrightarrow{RP}$


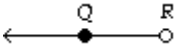
D) $\overleftrightarrow{RP}$


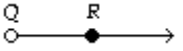
3) 

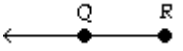
3) _____

Half-line QR

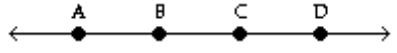
A) $\overrightarrow{QR}$


B) $\overrightarrow{RQ}$


C) $\overrightarrow{QR}$


D) $\overrightarrow{QR}$


Match the symbol with the answer choice that names the same set of points based on the given figure.

4) 

$\overleftrightarrow{AB}$
4) _____

A) $\overline{AB}$

B) $\overline{BA}$

C) $\overleftrightarrow{AD}$

D) None of these

Find the requested angle.

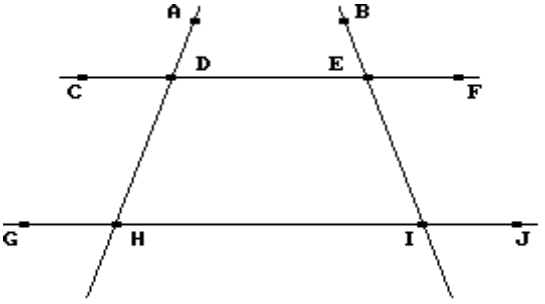
5) Complement of 80°
5) _____

A) 160° B) 10° C) 280° D) 100°

6) Supplement of 66°
6) _____

A) 294° B) 24° C) 132° D) 114°

Refer to this figure to answer the question. Assume $\overleftrightarrow{CF}$ and $\overleftrightarrow{GJ}$ are parallel.



7) What is the measure of ∠HDA? 7) _____

A) 180° B) 120° C) 90° D) 0°

8) Are ∠DEB and ∠BEF adjacent angles? 8) _____

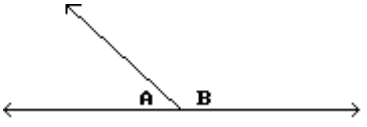
A) No B) Yes

9) Are ∠BEF and ∠EIJ equal in measure? 9) _____

A) No B) Yes

Find the measure of the angles.

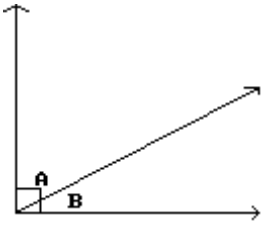
10) 10) _____



∠A = (2x + 1)°, ∠B = (4x + 5)°

A) 60° and 120° B) 68° and 112° C) 59° and 121° D) 55° and 125°

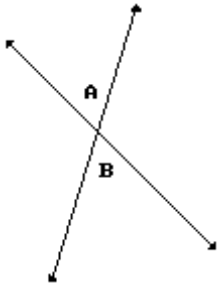
11) 11) _____



∠A = (3x - 3)°, ∠B = (x + 5)°

A) 27° and 63° B) 17° and 34° C) 60° and 120° D) 15° and 30°

12) 12) _____

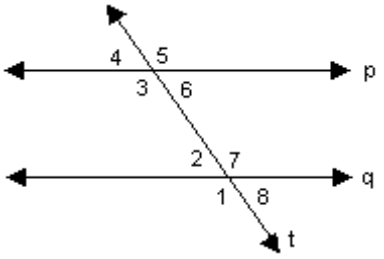


∠A = (6x - 64)°, ∠B = (3x - 19)°

A) 154° and 26° B) 26° and 26° C) 64° and 64° D) 154° and 154°

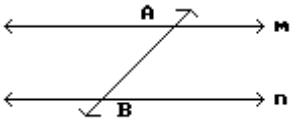
Use the properties of parallel lines to solve the problem.

13) If p ∥ q and m∠8 = 45°, what are the measures of the other angles? 13) _____



A) m∠2 = m∠4 = m∠6 = 45°, m∠1 = m∠3 = m∠5 = m∠7 = 135°
B) m∠2 = m∠4 = m∠6 = 45° , m∠1 = m∠3 = m∠5 = m∠7 = 145°
C) m∠5 = m∠6 = m∠7 = 45° , m∠1 = m∠2 = m∠3 = m∠4 = 135°
D) m∠2 = m∠4 = m∠6 = 45° , m∠1 = m∠3 = m∠5 = m∠7 = 45°

14) Assume that m and n are parallel. Find the measures of angles A and B. 14) _____



∠A = (5x - 2)°, ∠B = (4x + 29)°

A) 95°, 153° B) 134°, 114° C) 134°, 134° D) 153°, 153°

Solve the problem.

15) Find the measure of an angle if its supplement measures 225° less than 6 times its complement. 15) _____

A) 13° B) 27° C) 157° D) 78.5°

16) Find the measure of an angle such that the difference between its supplement and 2 times its complement is 41°. 16) _____

A) 100° B) 20° C) 41° D) 200°

Identify the curve as simple, closed, both, or neither.

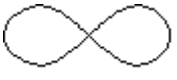
17) 17) _____

A) Simple B) Neither C) Both D) Closed

18) 18) _____

A) Both B) Neither C) Closed D) Simple

19) 19) _____

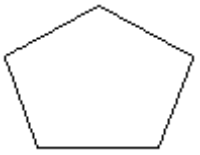


A) Both B) Simple C) Neither D) Closed

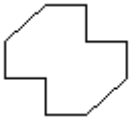
20)  20) _____

A) Closed B) Both C) Simple D) Neither

Decide whether the figure is convex or not convex.

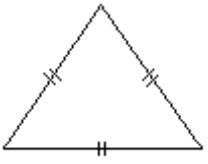
21)  21) _____

A) Convex B) Not convex

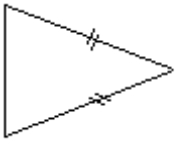
22)  22) _____

A) Not convex B) Convex

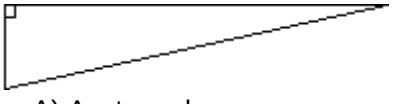
Classify the triangle as acute, right, or obtuse and as equilateral, isosceles, or scalene.

23)  23) _____

A) Obtuse, isosceles B) Obtuse, equilateral
C) Acute, scalene D) Acute, equilateral

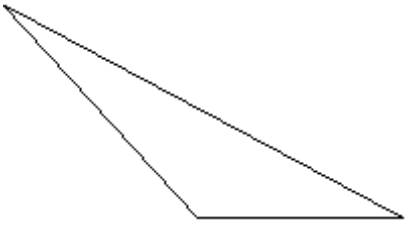
24)  24) _____

A) Acute, isosceles B) Obtuse, equilateral
C) Acute, scalene D) Obtuse, scalene

25)  25) _____

A) Acute, scalene B) Obtuse, equilateral
C) Right, scalene D) Obtuse, scalene

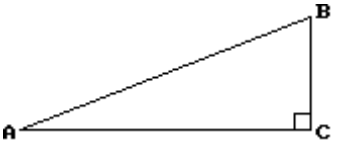
26) 26) _____



A) Right, scalene
B) Obtuse, equilateral
C) Acute, equilateral
D) Obtuse, scalene

Find the measure of each unknown angle in triangle ABC.

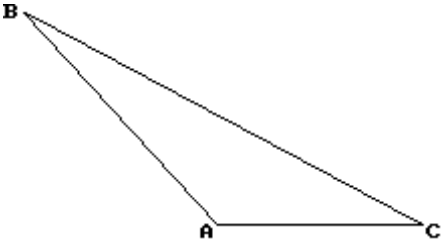
27) 27) _____



$\angle A = (36 - x)°$, $\angle B = (9x - 26)°$

A) $\angle A = \angle B = 45°$
B) $\angle A = 30°$, $\angle B = 60°$
C) $\angle A = 26°$, $\angle B = 64°$
D) $\angle A = 20°$, $\angle B = 70°$

28) 28) _____

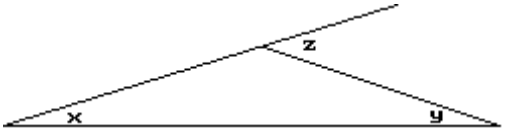


$\angle A = (40x - 20)°$, $\angle B = (36 - 2x)°$, $\angle C = (8 + x)°$

A) $\angle A = 40°$, $\angle B = 24°$, $\angle C = 16°$
B) $\angle A = 40°$, $\angle B = 36°$, $\angle C = 4°$
C) $\angle A = 140°$, $\angle B = 28°$, $\angle C = 12°$
D) $\angle A = 140°$, $\angle B = 32°$, $\angle C = 8°$

Solve the problem.

29) Find the measure of the indicated exterior angle. 29) _____

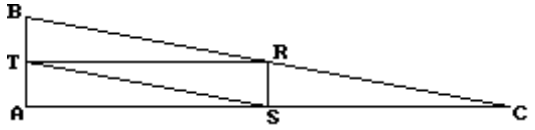


$\angle x = (5n - 17)°$, $\angle y = (n + 7)°$, $\angle z = (182 - 6n)°$

A) 176°
B) 84°
C) 153°
D) 86°

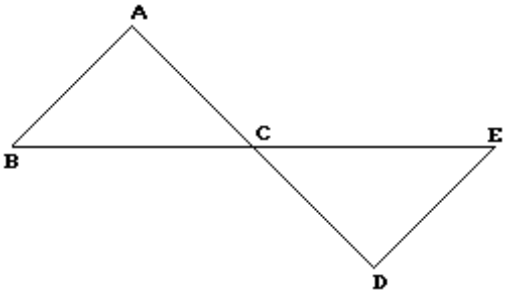
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide a STATEMENT/REASON proof for the congruence.

30) 

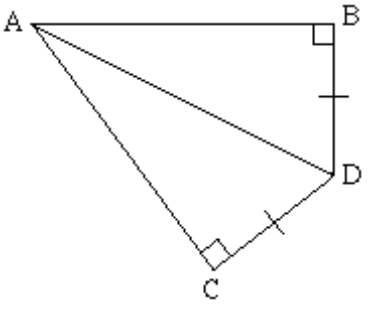
30) _____

Given: ∠AST = ∠RTS, AS = RT
Prove: △SAT ≅ △TRS

31) 

31) _____

Given: AC = DC, ∠BAC = ∠EDC
Prove: △ACB ≅ △DCE

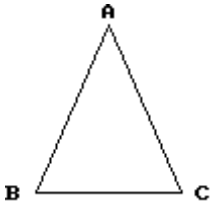
32) 

32) _____

Given: BD = CD, ∠DCA and ∠DBA are right angles
Prove: △ACD ≅ △ABD

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

Refer to the given figure, an isosceles triangle with AB = AC.



33) If ∠A measures 137° find the measure of ∠B. 33) _____

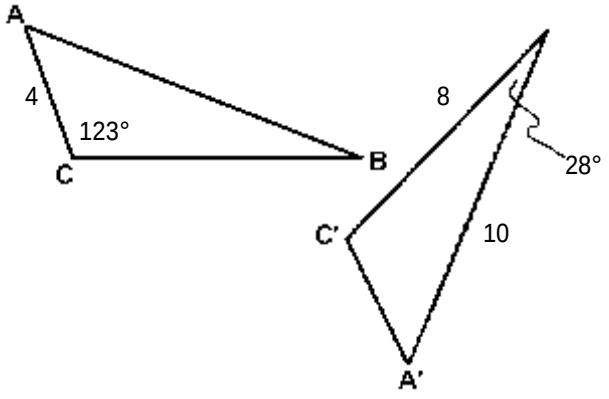
A) 16.5° B) 21.5° C) 43° D) 111.5°

34) If ∠C measures 25° find the measure of ∠A. 34) _____

A) 115° B) 50° C) 20° D) 130°

Give the measure of the missing angle using the similar triangles below.

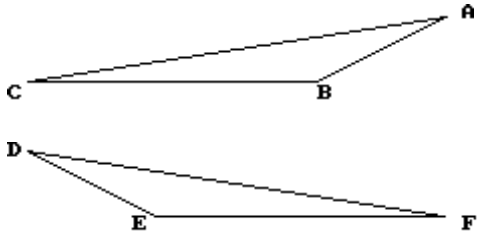
35) ∠BAC 35) _____



△ABC ~ △A'B'C'

A) ∠BAC = 29° B) ∠BAC = 28° C) ∠BAC = 123° D) ∠BAC = 56°

36) ∠E 36) _____

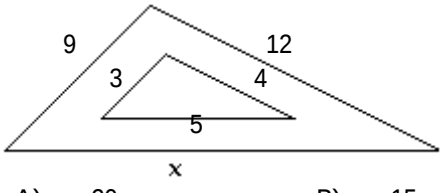


△ABC ~ △DEF, $\overline{AC}$ = 24 cm, ∠B = 110°

A) 24 cm B) 10° C) 110° D) 60°

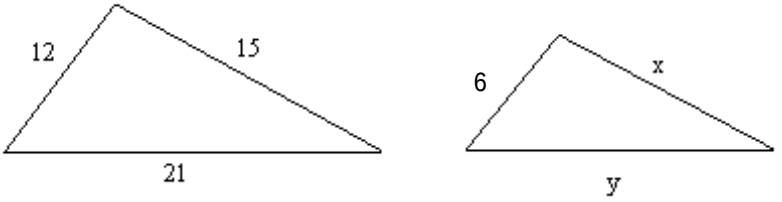
The two triangles below are similar. Find the unknown side lengths.

37) 37) _____



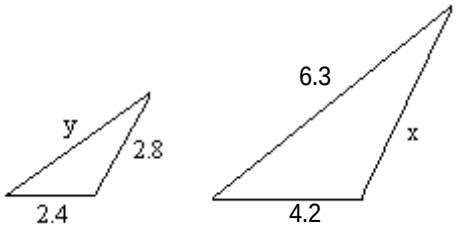
A) x = 20 B) x = 15 C) x = 16 D) x = 5

38) 38) _____



A) x = 9; y = 12 B) x = 7.5; y = 10.5 C) x = 9; y = 15 D) x = 30; y = 42

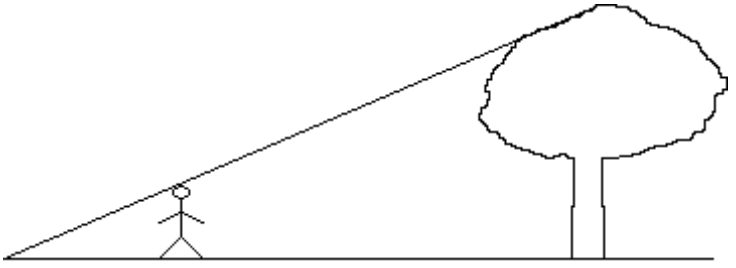
39) 39) _____



A) x = 1.60; y = 3.6 B) x = 4.9; y = 3.6 C) x = 4.9; y = 3.9 D) x = 5.6; y = 3.9

Solve the problem.

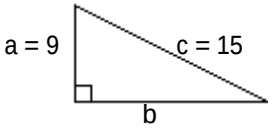
40) Raul, who is 1.94 m tall, wishes to find the height of a tree. He walks 20.25 m from the base of the tree along the shadow of the tree until his head is in a position where the tip of his shadow exactly overlaps the end of the tree top's shadow. He is now 9.05 m from the end of the shadows. How tall is the tree? Round to the nearest hundredth. 40) _____



A) 6.28 m B) 4.34 m C) 0.87 m D) 3.51 m

a and b represent the two legs of a right triangle, while c represents the hypotenuse. Find the length of the unknown side.

41) 41) _____



A) b = 14 B) b = 11 C) b = 15 D) b = 12

42) a = 25 in., b = 60 in. 42) _____

A) c = 55 in. B) c = 45 in. C) c = 61 in. D) c = 65 in.

43) b = 60 cm, c = 61 cm 43) _____

A) 12 = cm B) a = 11 cm C) 60 cm D) a = 10 cm

Solve the problem.

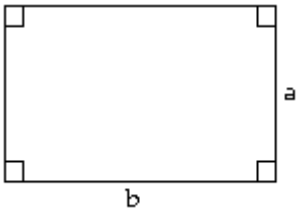
44) A ladder is resting against a wall. The top of the ladder touches the wall at a height of 12 ft. Find the length of the ladder if the length is 4 ft more than its distance from the wall. 44) _____

A) 20 ft B) 24 ft C) 16 ft D) 12 ft

45) The hypotenuse of a right triangle is 8 feet less than three times the shorter leg and the longer leg is 8 feet more than twice the shorter leg. Find the lengths of the three sides of the triangle. 45) _____

A) 15 ft, 36 ft, 39 ft B) 18 ft, 44 ft, 46 ft C) 20 ft, 48 ft, 52 ft D) 30 ft, 68 ft, 82 ft

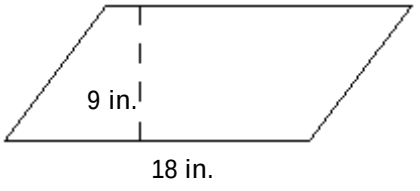
Find the area.

46) 

46) _____

a = 8.7 cm, b = 10.3 cm

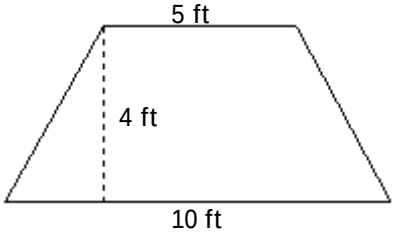
A) 179.22 cm^2 B) 89.61 cm^2 C) 34.8 cm^2 D) 19 cm^2

47) 

47) _____

(a parallelogram)

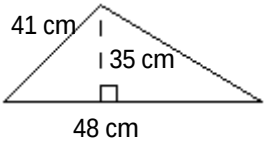
A) 81 in^2 B) 324 in^2 C) 27 in^2 D) 162 in^2

48) 

48) _____

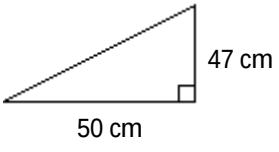
(a trapezoid)

A) 60 ft^2 B) 19 ft^2 C) 25 ft^2 D) 30 ft^2

49) 

49) _____

A) 717.5 cm^2 B) 840 cm^2 C) 612.5 cm^2 D) 1680 cm^2

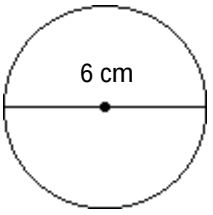
50) 

50) _____

A) 2350 cm^2 B) 1104.5 cm^2 C) 587.5 cm^2 D) 1175 cm^2

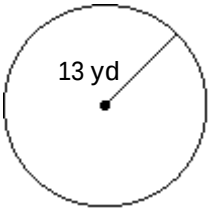
Find the area of the circle. Use 3.14 for π. Round results to two decimal places in necessary

51) 51) _____



A) 18.84 cm^2 B) 37.68 cm^2 C) 28.26 cm^2 D) 113.04 cm^2

52) 52) _____



A) 163.28 yd^2 B) 2122.64 yd^2 C) 81.64 yd^2 D) 530.66 yd^2

Solve the problem. Use 3.14 for π.

53) A wicker basket has a circular rim with a diameter of 11 inches. How many inches of ribbon are needed to go once around the rim? Round results to the nearest tenth of a unit. 53) _____

A) 32.5 in. B) 69.1 in. C) 34.5 in. D) 121.0 in.

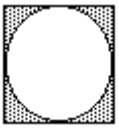
54) A rectangular Persian carpet has a perimeter of 240 inches. The length of the carpet is 30 inches more than the width. What are the dimensions of the carpet? 54) _____

A) 105 in. by 135 in. B) 90 in. by 120 in.
C) 75 in.by 105 in. D) 45 in. by 75 in.

Find the area of the shaded region in the figure. Round results to the nearest unit.

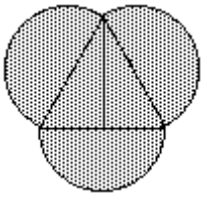
55) A small circular pool is enclosed in a square. Find the area inside the square but outside the circle. 55) _____

3.2 m



A) 32 m^2 B) 2.2 m^2 C) 8.0 m^2 D) 12 m^2

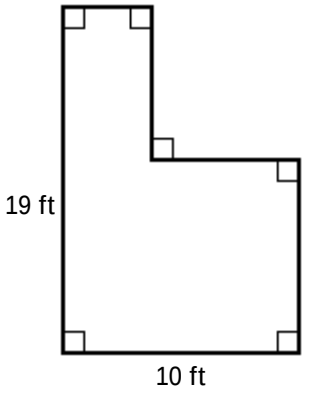
56) Semicircles are placed on the sides of an equilateral triangle with sides 5.2 ft as shown. Find the shaded area. 56) _____



A) 75.4 ft^2 B) 43.6 ft^2 C) 22.3 ft^2 D) 38.6 ft^2

Solve the problem.

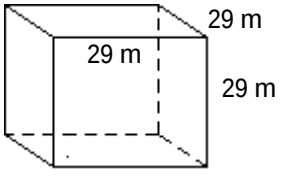
57) Can the perimeter of the polygon shown be determined from the given information? If so, what is the perimeter? Can the area of the polygon shown be determined from the given information? If so, what is the area? 57) _____



A) Yes, the perimeter is 58 feet. Yes, the area is 190 square feet.
B) No, there is not enough information given to find the perimeter. Yes, the area is 190 square feet.
C) Yes, the perimeter is 58 feet. No, there is not enough information given to find the area.
D) No, there is not enough information given to find the perimeter or the area.

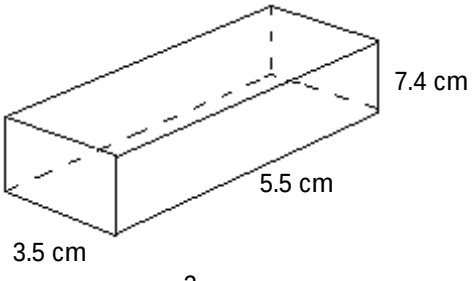
Find the volume.

58) 58) _____



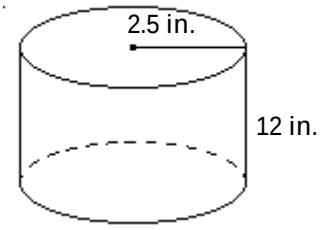
A) 24,389 m^3 B) 1682 m^3 C) 87 m^3 D) 841 m^3

59) 59) _____



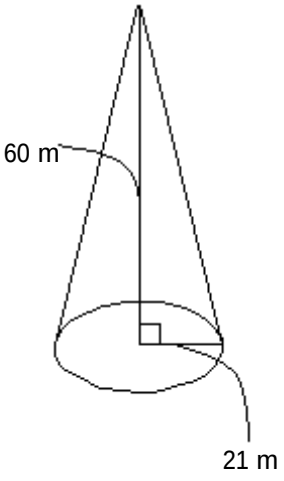
A) 142.450 cm^3 B) 142.450 cm^2
C) 44.20 cm^3 D) 16.4 cm^3

60) Find the volume of the circular cylinder below. Use 3.14 for π. 60) _____



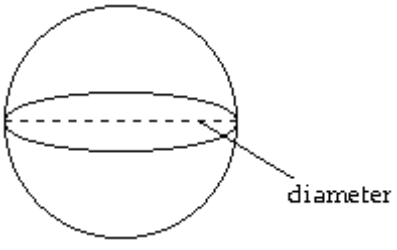
A) 235.5 in.^{3} B) 188.4 in.^{3} C) 942 in.^{3} D) 94.2 in.^{3}

61) Find the volume of the circular cone pictured below. Use 3.14 for π. Round your answer to the nearest whole number. 61) _____



A) 79,128 m^3 B) 27,695 m^3 C) 1319 m^3 D) 83,084 m^3

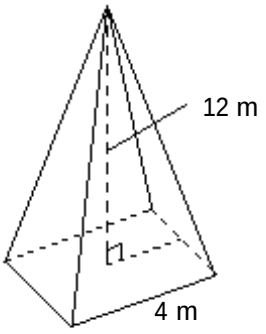
62) Find the volume of the given sphere. Use 3.14 for π. Round your answer to the nearest thousandth. 62) _____



diameter = 1.9 cm

A) 45.342 cm^3 B) 28.716 cm^3 C) 3.59 cm^3 D) 11.335 cm^3

63) 63) _____

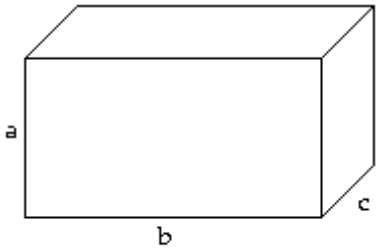


Square-based pyramid

A) 192 m^3 B) 112 m^3 C) 96 m^3 D) 64 m^3

Find the total surface area of the given space figure.

64) 64) _____

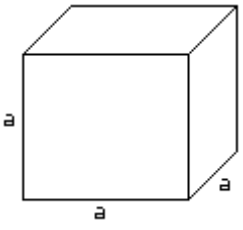


(a box)

a = 3 ft, b = 4 ft, c = 2 ft

A) 26 ft^2 B) 52 ft^2 C) 64 ft^2 D) 44 ft^2

65) 65) _____

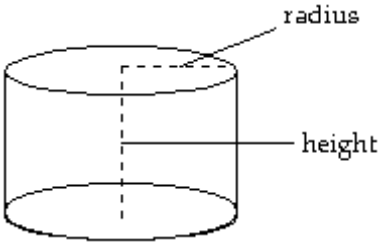


$a = 4\frac{1}{2}$ yd

A) $121\frac{1}{2}$ yd^2 B) $24\frac{1}{2}$ yd^2 C) 108 yd^2 D) $24\frac{3}{4}$ yd^2

Find the surface area of the circular solid. Unless otherwise specified, use 3.14 for π and round your answer to the nearest tenth.

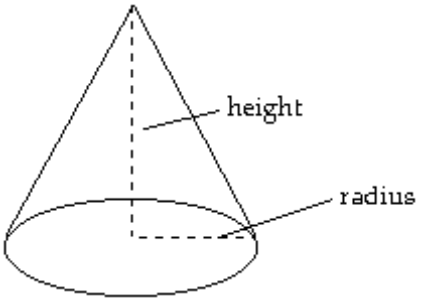
66) A right circular cylinder with r = 4 in, h = 5 ft (Give results in square feet.) 66) _____



A) 226.1 ft^2 B) 11.2 ft^2 C) 1.7 ft^2 D) 5.6 ft^2

67) A right circular cone with r = 5 cm, h = 8 cm 67) _____

(Use the formula $S = \pi r\sqrt{r^2 + h^2} + \pi r^2$.)



A) 125.6 cm^2 B) 201.0 cm^2 C) 226.6 cm^2 D) 78.5 cm^2

Solve the problem.

68) The foundation for a cylindrical water tank is a cylinder 24 ft in diameter and 2 ft high. How many cubic ft of concrete are needed to build the foundation (to the nearest hundredth)? 68) _____

A) 1808.64 ft^3 B) 904.32 ft^3 C) 3617.28 ft^3 D) 301.44 ft^3

69) Three people build a rectangular shed 7 ft wide, 5 ft long, and 6 ft high. About how many ft^3 does the shed contain? 69) _____

A) 210 ft^3 B) 107 ft^3 C) 18 ft^3 D) 1470 ft^3

One of the values r (radius), d (diameter), V (volume), or S(surface area) is given for a particular sphere. Find the indicated value. Leave π in your answer.

70) $V = 36\pi$ cm^3; r = ? 70) _____

A) 27 cm B) 3 cm C) 4 cm D) 1 cm

71) $S = 256\pi$ $in.^2$; r = ? 71) _____

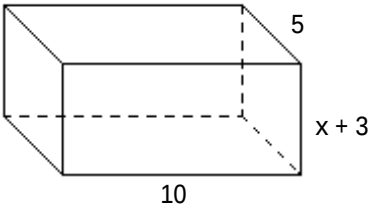
A) 8π in. B) 16 in. C) 8 in. D) 64 in.

72) $S = 256\pi$ km^2; V = ? 72) _____

A) $\frac{8}{3}\pi$ cm^3 B) 16π cm^2 C) 256 cm^2 D) $\frac{256}{3}\pi$ cm^2

The following figure has volume as indicated. Find the value of x.

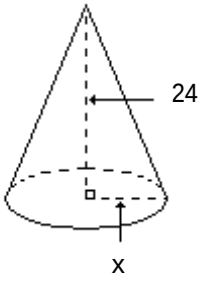
73) V = 250 73) _____



(a box)

A) -1 B) 5 C) 2 D) 13

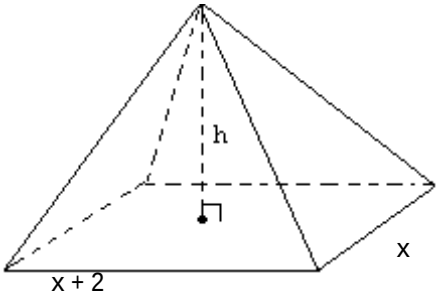
74) V = 968π 74) _____



(a right circular cone)

A) 121 B) $\frac{121}{3}$ C) 8 D) 11

75) V = 448 75) _____



h = 21

Base is a rectangle.

(a pyramid)

A) 8 B) $\frac{64}{3}$ C) 6 D) 49

Answer Key
Testname: WORKSHEET TEST 3

1) B
2) C
3) C
4) C
5) B
6) D
7) A
8) B
9) B
10) C
11) A
12) B
13) A
14) D
15) B
16) C
17) C
18) B
19) D
20) C
21) A
22) A
23) D
24) A
25) C
26) D
27) C
28) C
29) D

30)

STATEMENTS	REASONS
$\overline{AS} = \overline{RT}$	Given
$\angle AST = \angle RTS$	Given
$\overline{ST} = \overline{ST}$	Reflexive Property
$\triangle SAT \cong \triangle TRS$	SAS congruence property

31)

STATEMENTS	REASONS
$\overline{AC} = \overline{DC}$	Given
$\angle BAC = \angle EDC$	Given
$\angle ACB = \angle DCE$	Vertical angles are equal
$\triangle ACB \cong \triangle DCE$	ASA congruence property

32)

STATEMENTS	REASONS
$\overline{BD} = \overline{CD}$	Given
$\overline{AD} = \overline{AD}$	Reflexive property
$AC = AB$	Pythagorean Theorem
$\triangle ACD \cong \triangle ABD$	SSS congruence property

33) B
34) D

35) A
36) C
37) B
38) B
39) B
40) A
41) D
42) D
43) B
44) A
45) C
46) B
47) D
48) D
49) B
50) D
51) C
52) D
53) C
54) D
55) B
56) B
57) C
58) A
59) A
60) A
61) B
62) C
63) D
64) B
65) A
66) B
67) C
68) B
69) A
70) B
71) C
72) A
73) C
74) D
75) C