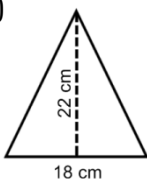# Review Sheet

Directions: *Complete all of the following questions on a separate sheet of paper.*
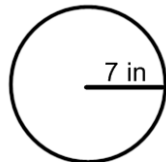
1) For the questions below, find the number of degrees in an exterior angle of a regular polygon.
    (a) Novagon   (b) Dodecagon   (c) Decagon

2) For the questions below, find the number of degrees in an interior angle of a regular polygon. (Round your answer to the nearest tenth, if necessary).
    (a) Hexagon   (b) Septagon   (c) Octagon

3) For the questions below, find the number of degrees in the sum of the interior angles of:
    (a) 4-sided figure   (b) 20-sided figure   (c) Pentagon

4) What is the sum of the exterior angles of a triangle? An octagon? A Decagon? Any regular Polygon?

5) The measure of an exterior angle of a polygon is 9°. How many sides does the polygon have?

6) The measure of an interior angle of a polygon is 162°. How many sides does the polygon have?

7) If the sum of the interior angles of a polygon equals 900°, how many sides does the polygon have?

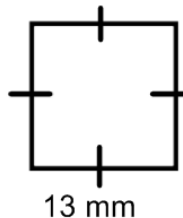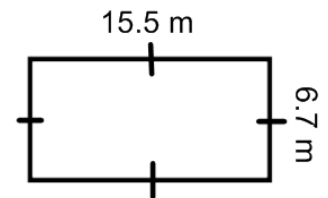8) Find the area of the following. If needed, round your answers(s) to the nearest tenth.

   (a)   (b)   (c)   (d)   15.5 m

(a) triangle: 22 cm (height), 18 cm (base)
(b) circle: 7 in (radius)
(c) square: 13 mm
(d) rectangle: 15.5 m by 6.7 m

_____ 9) The volume, in cubic centimeters, of a sphere whose diameter is 6 centimeters is:
    (1) 12π (3) 48π
    (2) 36π (4) 288π

_____ 10) What is the volume, in cubic centimeters, of a cylinder that has a height of 15 cm and a diameter of 12 cm?
   (1) 180π (3) 675π
    (2) 540π (4) $2{,}160\pi$

_____ 11) If the surface area of a sphere is represented by 144π, what is the volume in terms of π?
    (1) 36π (3) 216π
    (2) 48π (4) 288π

12) Mrs. Ayer is painting the outside of her son's toy box, including the top and bottom. The toy box measures 3 feet long, 1.5 feet wide, and 2 feet high. What is the total surface area she will paint?
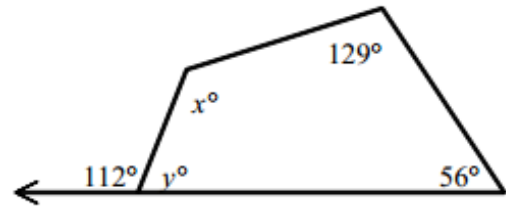
13) The diagram below represents Pete's two fish tanks. Pete's larger tank is completely filled with water. He takes water from it to completely fill the small tank. Determine how many cubic inches of water will remain in the larger tank.
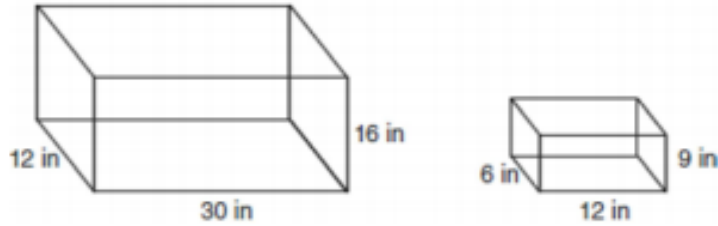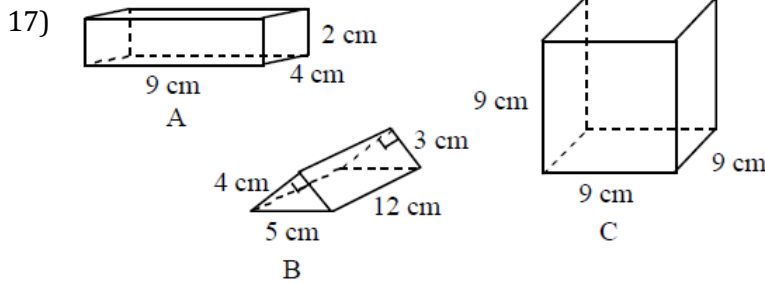

14) Find the surface area of the cylinder. (not drawn to scale) Leave in terms of π.
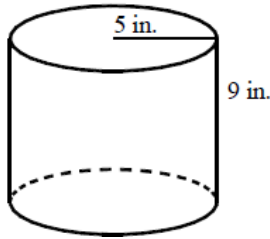
15) Find the value of x and y.

16) A right circular cylinder has an altitude of 11 feet and a radius of 5 feet. What is the lateral area, in square feet, of the cylinder, to the *nearest tenth*?

17)

The surface area of Prism C above is _____ the surface area of Prism A.

[A] less than half   [B] greater than half   [C] equal to   [D] half

18) A right circular cone has a base with a radius of 15 cm, a vertical height of 20 cm, and a slant height of 25 cm. Find, in terms of π, the number of square centimeters in the lateral area of the cone.

19) If the radius of a circular base of a cylinder is 12 inches and the height of the cylinder is 15 inches, answer each of the following questions. Leave all your answers in terms of π.
   (a) Find the area of the circular base of the cylinder.
   (b) Find the lateral area of the cylinder.
   (c) Find the surface area of the cylinder.
   (d) Find the volume.

20) The area of a square is 100ft². What is the perimeter?

21) What is the number of inches in the radius of a cylinder 2 inches in height if its volume is $288\pi in^3$?

22) A cone sits inside a cube with a side length of 22 inches. Determine the volume, to the nearest tenth of an inch that is inside the cube but outside of the cone.

23) In the accompanying figure of a right prism, the bases are right triangles. Which statement about its volume (V) and lateral area (LA) is true?

      (a) V= 288, LA=288   (b) V=288, LA=216   (c) V=720, LA=288   (d) V=720, LA=216
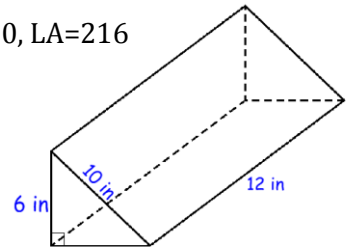
24) The bases of a right prism are right triangles whose legs measure 5 inches and 12 inches. If the lateral edge of the prism measures 15 inches, what is the number of square inches in the lateral area of the prism?

25) For the cylinder below, find:
     (a) The lateral area in terms of π.
     (b) The volume correct to the nearest *tenth* of a cubic unit.
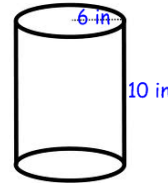
26) A right circular cylinder has a lateral area of $306\pi ft^2$. If the height of the cylinder is 17 feet, express in terms of π the number of cubic feet in the volume of the cylinder.

27) In the diagram below, circle O is inscribed in square ABCD. The square has an area of 36. Determine the area of the circle. Leave your answer in terms of π.
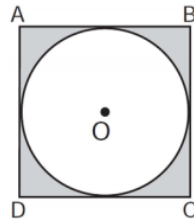

28) A right cone has a diameter of 18 feet and a slant height of 15 feet. Which statement about its volume (V) and lateral area (LA) is true?
     (a) V= 405π, LA=135π (b) V=405π, LA=324π (c) V=324π, LA=135π (d) V=324π, LA=324π

29) In the accompanying diagram of a square pyramid, the length of a lateral edge is 25 cm and the length of a side of the base is 14 cm. Find:
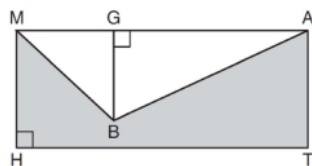   (a) The surface area of the pyramid
     (b) The volume of the pyramid.
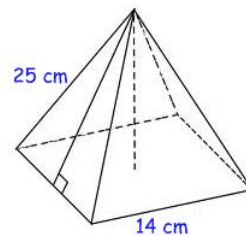
30) A box in the shape of a right rectangular prism has a length of 10 in, width 8 in, and height 15 in. When completely filled the box has a density of 0.05 pounds per cubic inch. Determine the mass.

31) In the diagram below, MATH is a rectangle, GB=4.6, MH=6, and HT=15. What is the area of polygon MBATH?
     (1) 34.5
     (2) 55.5
     (3) 90.0
   (4) 124.5

32) In the diagram below of rectangle AFEB and semicircle with diameter $\overline{CD}$, AB=5 inches, AB=BC=DE=FE, and CD=6 inches. Find the area of the shaded region, to the nearest hundredth of a square inch.
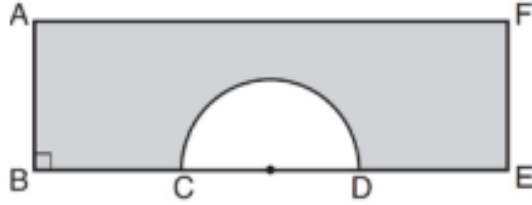

33) A planned building was going to be 120 feet long, 70 feet deep, and 30 feet high. The owner decides to increase the volume of the building by 20% without changing the dimensions of the depth and height. What will be the new length of the building?

34) In the diagram below, find the difference in volume in cubic centimeters.
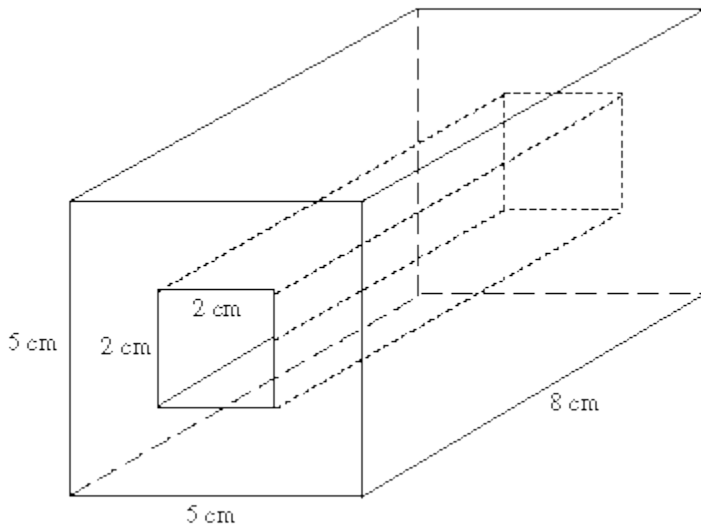
35) The figure below is composed of two rectangles and a quarter circle. What is the area of this figure, to the nearest square centimeter?
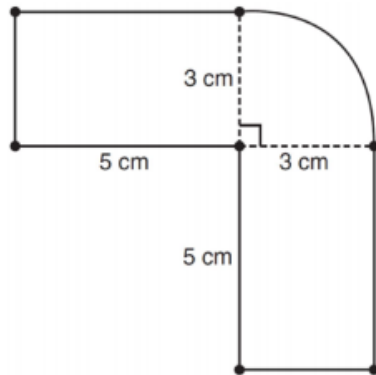
Directions: *Complete all of the following questions on a separate sheet of paper.*

1) Campsite A and Campsite B are located directly opposite each other on the shores of Lake Omega, as shown in the diagram below. The two campsites form a right triangle with Sam's position, S. The distance from Campsite B to Sam's position is 1,300 yards, and campsite A is 1,700 yards from his position. What is the distance from Campsite A to Campsite B to the nearest yard?
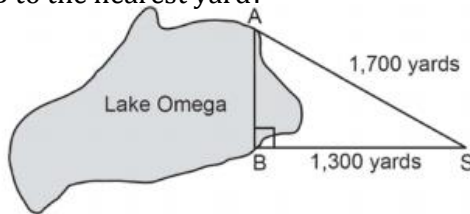
2) Simplify the following radicals:
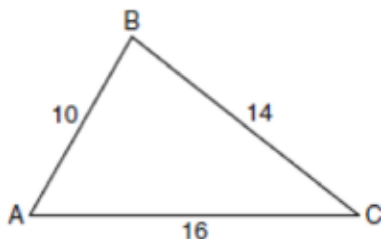
   (a) $\sqrt{200}$ (b) $3\sqrt{108}$ (c) $\sqrt{72a^2b^5}$ (d) $3a\sqrt{16a^3b^6c^9}$

3) The lengths of the sides of a triangle are 4,5, and 9. Could this represent the sides of a triangle? Explain.

4) In the diagram of $\triangle ABC$ below, $AB = 10$, $BC = 14$, and $AC = 16$. Find the perimeter of the triangle formed by connecting the midpoints of the sides of $\triangle ABC$.
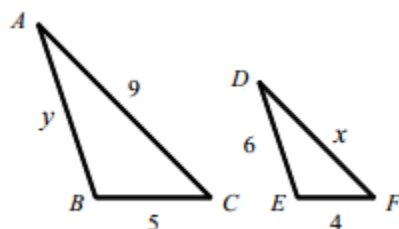

5) As shown in the accompanying diagram, the star in position 1 on a computer screen transforms to the star in position 2.
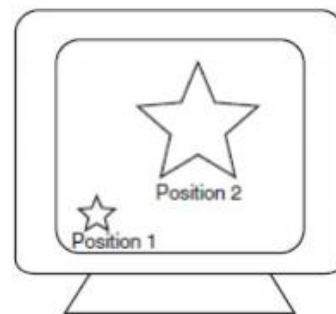
This transformation is best described as a
1) line reflection
2) translation
3) rotation
4) dilation

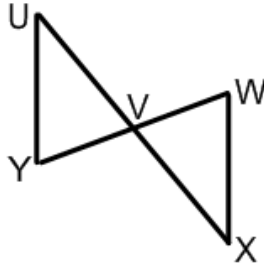6) Given that triangle ABC and triangle DEF are similar, solve for the value of x and y.

7) The vertices of triangle ABC are A(-2,10), B (-4,2), and C (-8,4).
   a) State the coordinates of A'B'C', the image of ABC, after a reflection in y = x.
   b) State the coordinates of A"B"C", the image of A'B'C', after $T_{6,-2}$
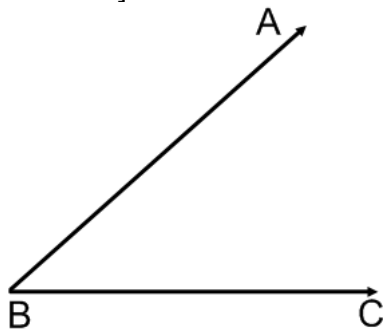   c) State the coordinates of A"'B"'C"', image of A"B"C", after $D_{1/2}$

8) **Given:** V is the midpoint of $\overline{YW}$

   $\overline{UY}||\overline{XW}$
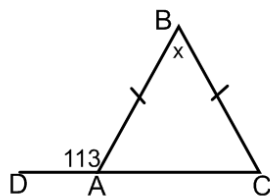
   Prove: $\overline{UV} \cong \overline{XV}$

9) Using a compass and a straightedge, on the diagram below of angle ABC, construct an angle bisector of the angle ABC. [Leave all construction marks.]

10) What is the equation of a line that is parallel to $4x - 2y = 10$ and passes through the point (12,-14).

11) In the diagram below of ΔABC, $\overline{AB} \cong \overline{BC}$. Find the value of x. [image is *not* drawn to scale.]

12) In the diagram $\overline{MA} \parallel \overline{TH}$, and the transversal G intersects the parallel lines at points R and E. If the m< ARE = 3x + 12 and the m< MRE = 5x – 16, find the measure of angle RET.
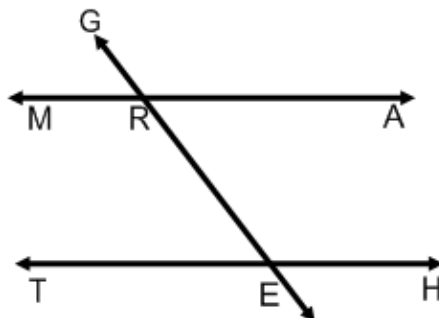
Answer Key:

1.) (a) 40   (b) 30   (c) 36   2.) (a) 120   (b) 128.6   (c) 135

3.) (a) 360   (b) 3240   (c) 540   5.) 40 sides   6.) 20 sides   7.) 7 sides

8.) (a) 198 cm²   (b) 153.9 in²   (c) 169 mm²   (d) 103.85 m²

9.) (2)   10.) (2)   11.) (4)   12.) 27 ft²   13.) 4896 in²   14.) $140\pi in^2$

15.) y = 68 x = 107   16.) 345.6 ft²   17.) B   18.) $375\pi cm^2$

19.) (a) 144π (b) 360π (c) 648π (d) 2160π 20.) 40 ft   21.) 12 in

22.) 7860.4 in³ 23.) (a)   24.) 450 in²   25.) (a) 120π (b) 1131.0   26.) 5508π

27.) 9π 28.) (c)   29.) (a) 896 cm³   (b) 1568 cm³   30.) 60 lbs

31.) (2)   32.) 51.73   33.) 144 ft   34.) 168 cm³   35.) 37 cm²

Review Sheet: Review Questions Key

1.) 1095   2.) (a) $10\sqrt{2}$ (b) $18\sqrt{2}$ (c) $6ab^2\sqrt{2b}$ (d) $12a^2b^3c^4\sqrt{ac}$

3.) No because the sum of the two smallest sides is not greater than the third

4.) 20   5.) (4)   6.) y = 7.5; x = 7.2

7.) (a) A'(10,-2), B'(2,-4), C'(4,-8)   (b) A"(16,-4), B"(8,-6), C"(10,-10)   (c) A'''(8,-2), B'''(4,-3), C'''(5,-5)

8.) Correct Proof   9.) Correct Construction   10.) Y + 14 = 2(X – 2)

11.) 46°   12.) 81°