

Review Problems

Lesson 1.3 – Terminology

Lesson 1.4 – Polygons

Lesson 1.5 – Triangles and special quadrilaterals

Lesson 2.5 – Angle relationships

Lesson 2.6 – Special angles on parallel lines

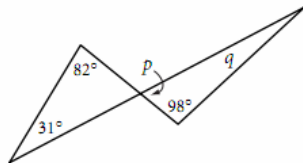
Chapter 3 – Points of concurrency in triangles

1. On a piece of graph paper, draw four separate triangles with vertices at $A(-2, 2)$, $B(0, 10)$, and $C(8, 0)$.
 - Triangle 1 – Draw the altitudes and find the orthocenter
 - Triangle 2 – Draw the medians and find the centroid
 - Triangle 3 – Draw the perpendicular bisectors and find the circumcenter. Draw the circumscribed circle.
 - Triangle 4 – Draw the angle bisectors and find the incenter. Draw the inscribed circle.

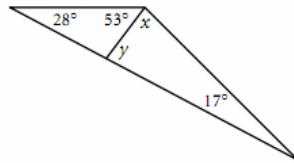
Lesson 4.1 – Triangle sum

In Exercises 1–9, determine the angle measures.

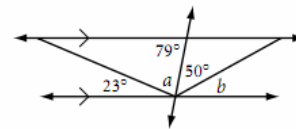
1. $p = \underline{\hspace{2cm}}$, $q = \underline{\hspace{2cm}}$



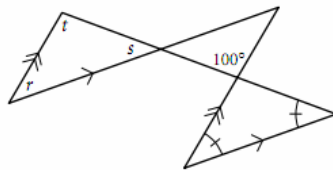
2. $x = \underline{\hspace{2cm}}$, $y = \underline{\hspace{2cm}}$



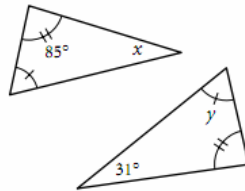
3. $a = \underline{\hspace{2cm}}$, $b = \underline{\hspace{2cm}}$



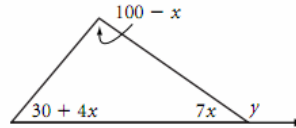
4. $r = \underline{\hspace{2cm}}$, $s = \underline{\hspace{2cm}}$,
 $t = \underline{\hspace{2cm}}$



5. $x = \underline{\hspace{2cm}}$, $y = \underline{\hspace{2cm}}$



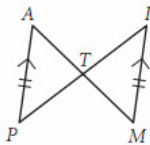
6. $y = \underline{\hspace{2cm}}$



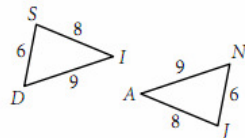
Lesson 4.4 – Congruence shortcuts – SSS, AAS, SAS (not AAA or ASS)

In Exercises 4–6, name the conjecture that leads to each congruence.

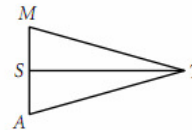
4. $\triangle PAT \cong \triangle IMT$



5. $\triangle SID \cong \triangle JAN$



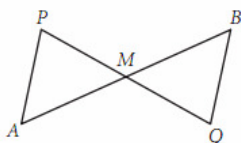
6. \overline{TS} bisects \overline{MA} , $\overline{MT} \cong \overline{AT}$, and $\triangle MST \cong \triangle AST$



In Exercises 7–11, use the information given to complete each statement. If the triangles cannot be shown to be congruent from the information given, write “cannot be determined” and redraw the figures to show that the triangles are clearly not congruent. Do not assume that segments or angles are congruent just because they appear to be congruent.

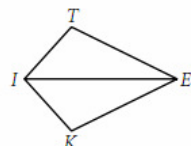
7. M is the midpoint of \overline{AB} and \overline{PQ} .

$\triangle APM \cong \triangle \underline{\hspace{2cm}}$

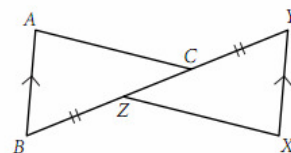


8. $KITE$ is a kite with $KI = TI$.

$\triangle KIE \cong \triangle \underline{\hspace{2cm}}$



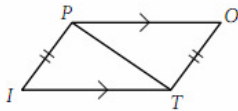
9. $\triangle ABC \cong \underline{\hspace{2cm}}$



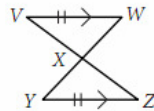
Lesson 4.5 – Congruence shortcuts – SSS, AAS, SAS (not AAA or ASS)

In Exercises 3–8, use the information given to complete each statement. If the triangles cannot be shown to be congruent from the information given, write “cannot be determined” and redraw the figures to show that the triangles are clearly not congruent. Do not assume that segments or angles are congruent just because they appear to be congruent.

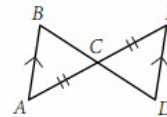
3. $\triangle PIT \cong \triangle$ _____



4. $\triangle XVW \cong \triangle$ _____

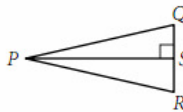


5. $\triangle ECD \cong \triangle$ _____

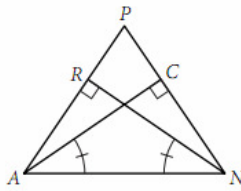


6. \overline{PS} is the angle bisector of $\angle QPR$.

$\triangle PQS \cong \triangle$ _____

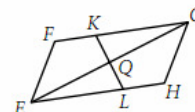


7. $\triangle ACN \cong \triangle$ _____

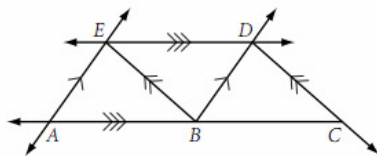


8. EFGH is a parallelogram.
 $GQ = EQ$.

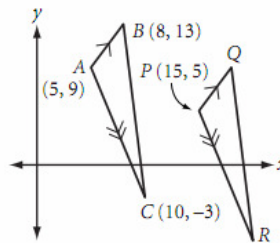
$\triangle EQL \cong \triangle$ _____



9. Name three pairs of congruent triangles. For each pair, explain how you know they are congruent.



10. $\triangle ABC \cong \triangle PQR$. Find the coordinates of Q and R. Show that $\overline{BC} \parallel \overline{QR}$.



Lesson 5.1 – Polygon Sum Conjecture

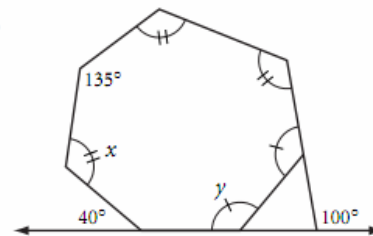
The Total angle measure = $180^\circ (n - 2)$ where n is the number of sides.

In Exercises 1–4, find each lettered angle measure.

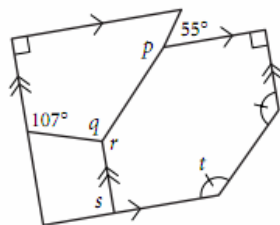
1.



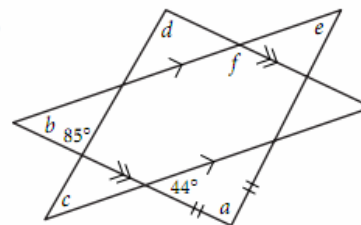
2.



3.



4.

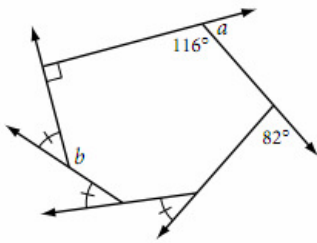


Lesson 5.2 – Exterior Angles of a polygon

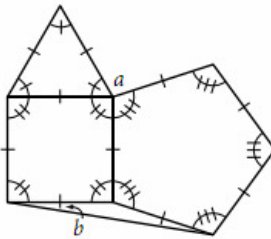
The Sum of exterior angles around a polygon is 360° (Sentry Theorem).

In Exercises 1–3, find each lettered angle measure.

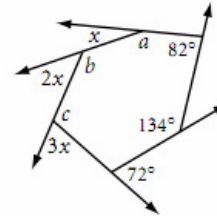
1. $a = \underline{\hspace{1cm}}$, $b = \underline{\hspace{1cm}}$



2. $a = \underline{\hspace{1cm}}$, $b = \underline{\hspace{1cm}}$

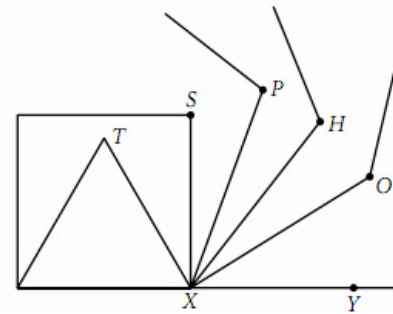


3. $a = \underline{\hspace{1cm}}$, $b = \underline{\hspace{1cm}}$,
 $c = \underline{\hspace{1cm}}$



4. How many sides does a regular polygon have if each exterior angle measures 30° ?
5. How many sides does a polygon have if the sum of the measures of the interior angles is 3960° ?
6. If the sum of the measures of the interior angles of a polygon equals the sum of the measures of its exterior angles, how many sides does it have?
7. If the sum of the measures of the interior angles of a polygon is twice the sum of its exterior angles, how many sides does it have?
8. \overline{XT} is the side of an equilateral triangle. \overline{XS} is the side of a square. \overline{XP} is the side of a regular pentagon. \overline{XH} is the side of a regular hexagon. \overline{XO} is the side of a regular octagon.

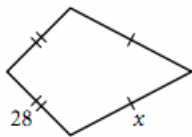
$m\angle TXS = \underline{\hspace{1cm}}$ $m\angle SXP = \underline{\hspace{1cm}}$
 $m\angle PXH = \underline{\hspace{1cm}}$ $m\angle HXO = \underline{\hspace{1cm}}$
 $m\angle OXY = \underline{\hspace{1cm}}$



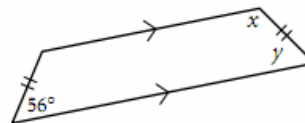
Lesson 5.3 – Kite and Trapezoid properties

In Exercises 1–4, find each lettered measure.

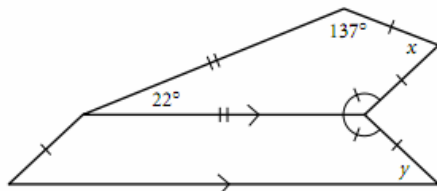
1. Perimeter = 116. $x = \underline{\hspace{1cm}}$



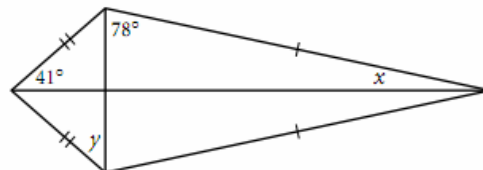
2. $x = \underline{\hspace{1cm}}$, $y = \underline{\hspace{1cm}}$



3. $x = \underline{\hspace{1cm}}$, $y = \underline{\hspace{1cm}}$



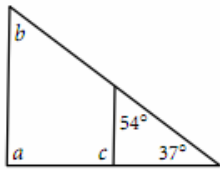
4. $x = \underline{\hspace{1cm}}$, $y = \underline{\hspace{1cm}}$



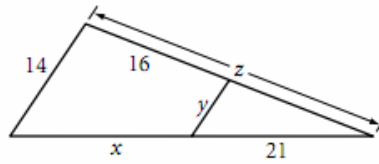
Lesson 5.4 – Properties of midsegments

In Exercises 1–3, each figure shows a midsegment.

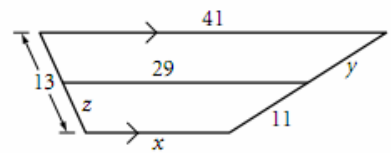
1. $a = \underline{\hspace{2cm}}$, $b = \underline{\hspace{2cm}}$,
 $c = \underline{\hspace{2cm}}$



2. $x = \underline{\hspace{2cm}}$, $y = \underline{\hspace{2cm}}$,
 $z = \underline{\hspace{2cm}}$



3. $x = \underline{\hspace{2cm}}$, $y = \underline{\hspace{2cm}}$,
 $z = \underline{\hspace{2cm}}$

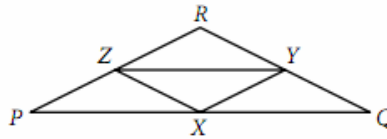


4. x , y , and z are midpoints. Perimeter $\triangle PQR = 132$, $RQ = 55$, and $PZ = 20$.

Perimeter $\triangle XYZ = \underline{\hspace{2cm}}$

$PQ = \underline{\hspace{2cm}}$

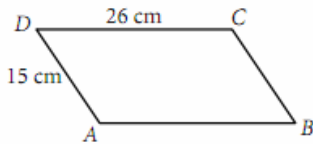
$ZX = \underline{\hspace{2cm}}$



Lesson 5.5 – Properties of parallelograms

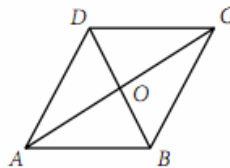
In Exercises 1–7, $ABCD$ is a parallelogram.

1. Perimeter $ABCD = \underline{\hspace{2cm}}$



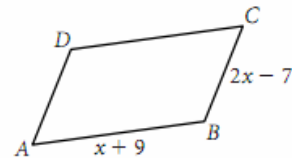
2. $AO = 11$, and $BO = 7$.

$AC = \underline{\hspace{2cm}}$, $BD = \underline{\hspace{2cm}}$



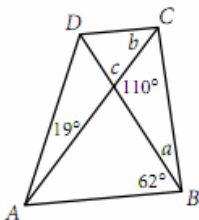
3. Perimeter $ABCD = 46$.

$AB = \underline{\hspace{2cm}}$, $BC = \underline{\hspace{2cm}}$



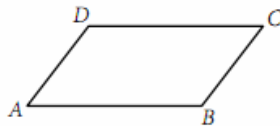
4. $a = \underline{\hspace{2cm}}$, $b = \underline{\hspace{2cm}}$,

$c = \underline{\hspace{2cm}}$



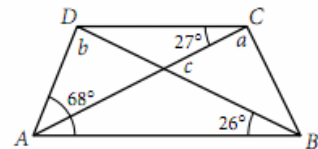
5. Perimeter $ABCD = 119$, and

$BC = 24$. $AB = \underline{\hspace{2cm}}$



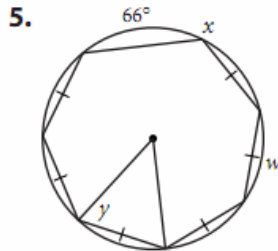
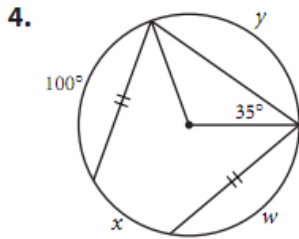
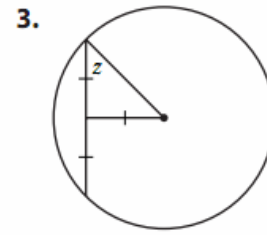
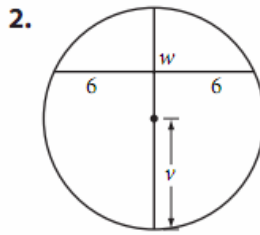
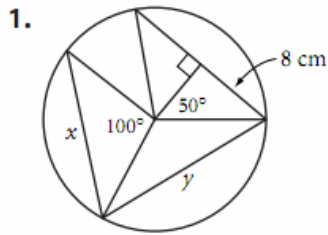
6. $a = \underline{\hspace{2cm}}$, $b = \underline{\hspace{2cm}}$,

$c = \underline{\hspace{2cm}}$



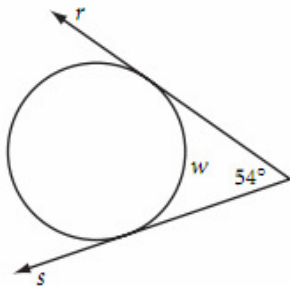
Lesson 6.1 – Properties of chords

In Exercises 1–5, find each unknown or write “cannot be determined.”

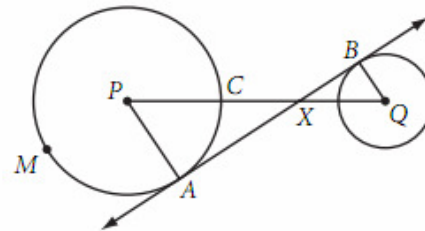


Lesson 6.2 – Tangent properties

1. Rays r and s are tangents. $w = \underline{\hspace{2cm}}$

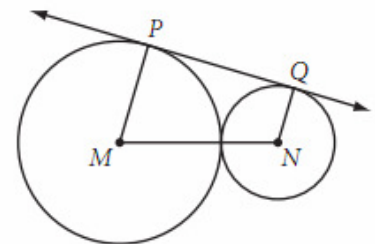


2. \overleftrightarrow{AB} is tangent to both circles and $m\widehat{AMC} = 295^\circ$. $m\angle BQX = \underline{\hspace{2cm}}$

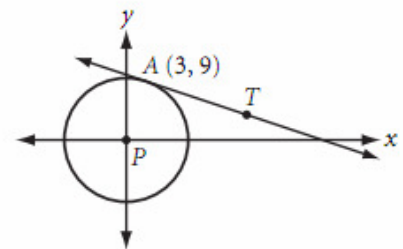


3. \overleftrightarrow{PQ} is tangent to two externally tangent noncongruent circles, M and N .

- What kind of quadrilateral is $MNQP$? Explain your reasoning.
- If circles M and N are congruent, what is $MNQP$? Explain why.

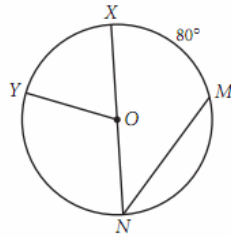


4. \overleftrightarrow{AT} is tangent to circle P . Find the equation of \overleftrightarrow{AT} .

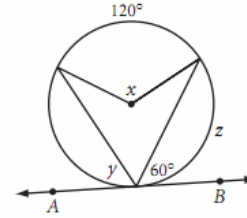


Lesson 6.3 – Arcs and angles

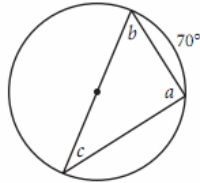
1. $m\widehat{XM} = 80^\circ$
 $m\angle XNM = \underline{\hspace{2cm}}$
 $m\widehat{XN} = \underline{\hspace{2cm}}$
 $m\widehat{MN} = \underline{\hspace{2cm}}$



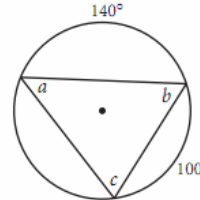
2. \overline{AB} is a tangent.
 $x = \underline{\hspace{2cm}}$
 $y = \underline{\hspace{2cm}}$
 $z = \underline{\hspace{2cm}}$



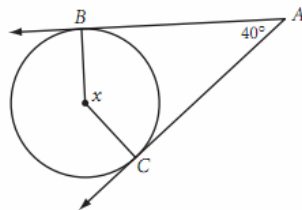
3. $a = \underline{\hspace{2cm}}$
 $b = \underline{\hspace{2cm}}$
 $c = \underline{\hspace{2cm}}$



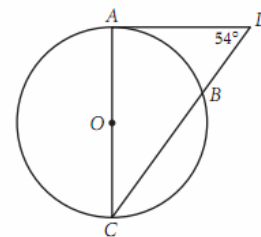
4. $a = \underline{\hspace{2cm}}$
 $b = \underline{\hspace{2cm}}$
 $c = \underline{\hspace{2cm}}$



5. \overline{AB} and \overline{AC} are tangents.
 $x = \underline{\hspace{2cm}}$



6. \overline{AD} is a tangent. \overline{AC} is a diameter.
 $m\angle A = \underline{\hspace{2cm}}$
 $m\widehat{AB} = \underline{\hspace{2cm}}$
 $m\angle C = \underline{\hspace{2cm}}$
 $m\widehat{CB} = \underline{\hspace{2cm}}$



Lesson 6.4 – Perimeter and Diameter of a circle: $C = \pi d$ or $C = 2\pi r$

In Exercises 1–7, leave your answers in terms of π .

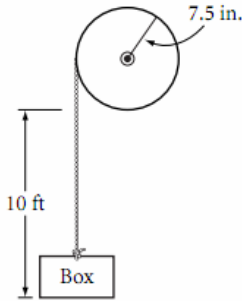
- | | |
|--|----------------------------------|
| 1. If $r = 10.5$ cm, find C . | 2. If $C = 25\pi$ cm, find r . |
| 3. If $C = 9.6\pi$ cm, find d . | 4. If $d = 12$ cm, find C . |
| 5. What is the circumference of a circle whose radius is 30 cm? | |
| 6. What is the diameter of a circle whose circumference is 24π cm? | |
| 7. A square with sides that measure 2 cm is inscribed in a circle. Find the circumference of the circle. | |

In Exercises 8–13, round your answer to the nearest 0.1 unit. Use the symbol \approx to show that your answer is an approximation.

- | | |
|---|--------------------------------|
| 8. If $d = 9.6$ cm, find C . | 9. If $r = 8.1$ cm, find C . |
| 10. If $C = 132$ cm, find d and r . | |
| 11. A dinner plate fits snugly in a square box with perimeter 48 inches. What is the circumference of the plate? | |
| 12. Four saucers are part of the same set as the dinner plate in Exercise 11. Each has a circumference of 15.7 inches. Will they fit, side by side, in the same square box? If so, how many inches will there be between the saucers for padding? | |

Lesson 6.5 – Using perimeter and diameter in problems

- Alfonzo's Pizzeria bakes olive pieces in the outer crust of its 20-inch (diameter) pizza. There is at least one olive piece per inch of crust. How many olive pieces will you get in one slice of pizza? Assume the pizza is cut into eight slices.
- To use the machine below you turn the crank, which turns the pulley wheel, which winds the rope and lifts the box. Through how many rotations must you turn the crank to lift the box 10 feet?



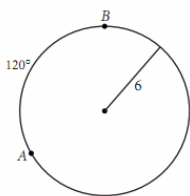
- A satellite in *geostationary* orbit stays over the same spot on Earth. The satellite completes one orbit in the same time that Earth rotates once about its axis (23.93 hours). If the satellite's orbit has radius 4.23×10^7 m, calculate the satellite's orbital speed (tangential velocity) in m/sec.
- You can make an electromagnet by wrapping a wire around a nail and then sending a current through the wire. The strength of the magnet is directly proportional to the number of wrappings. The nail, pictured below, has a diameter of 0.4 cm. The wire is 0.05 cm in diameter, and you can get 100 wrappings side-by-side on the nail before having to start another layer. Consider each wrapping a perfect circle. How many meters of wire do you need, to the nearest 0.1 m, to make a magnet with 700 wrappings?



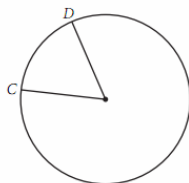
Lesson 6.6 – Arc length

Use your conjectures to solve each problem. Leave your answers in terms of π .

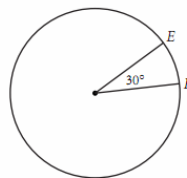
1. Length of \widehat{AB} = _____



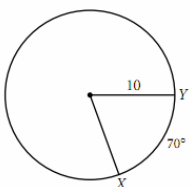
2. The circumference is 24π and $m\widehat{CD} = 60^\circ$. Length of \widehat{CD} = _____



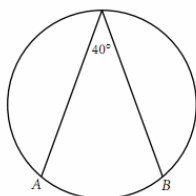
3. The length of \widehat{EF} is 5π . Radius = _____



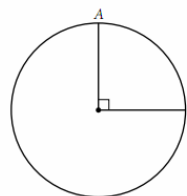
4. Length of \widehat{XY} = _____



5. The radius is 20. Length of \widehat{AB} = _____



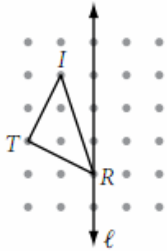
6. The circumference is 25π . Length of \widehat{AB} = _____



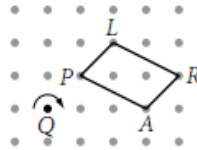
Lesson 7.1 – Transformations

In Exercises 1–3, copy the figure onto graph or dot paper and perform the transformation.

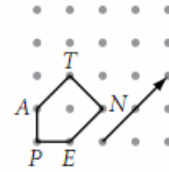
1. Reflect $\triangle TRI$ over line ℓ .



2. Rotate $PARL$ 270° clockwise about Q .

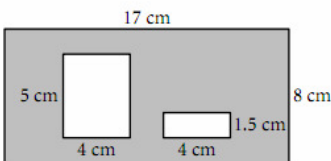


3. Translate $PENTA$ by the given vector.

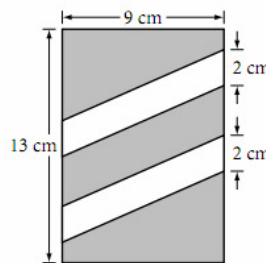


Lesson 8.1 – Areas of rectangles and parallelograms

1. Find the area of the shaded region.

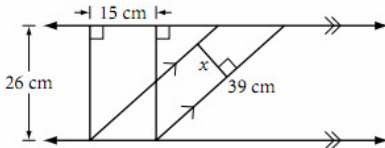


2. Find the area of the shaded region.

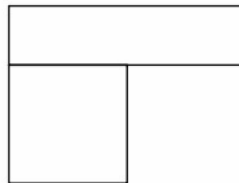


3. Rectangle $ABCD$ has area 2684 m^2 and width 44 m . Find its length.

4. Find x .

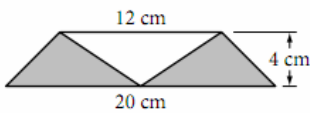


5. The rectangle and the square have equal area. The rectangle is 12 ft by 21 ft . What is the perimeter of the entire hexagon in feet?

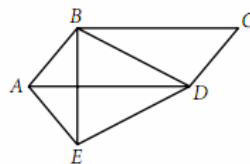


Lesson 8.2 – Areas of triangles, trapezoids and kites

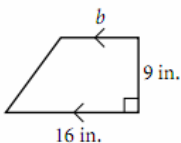
1. Find the area of the shaded region.



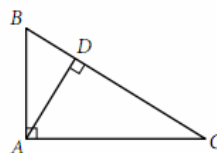
2. $ABCD$ is a parallelogram, $ABDE$ is a kite, $AD = 18 \text{ cm}$, and $BE = 10 \text{ cm}$. Find the area of $ABCDE$.



3. Area = 126 in.^2 . $b = \underline{\hspace{2cm}}$.



4. $AB = 6 \text{ cm}$, $AC = 8 \text{ cm}$, and $BC = 10 \text{ cm}$. Find AD .

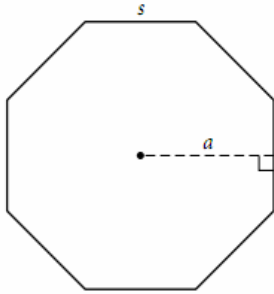


Lesson 8.3 – Areas of regular polygons

In Exercises 1–3, the polygons are regular.

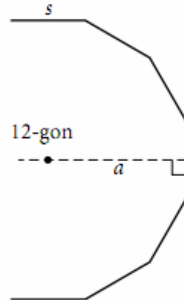
1. $s = 12$ cm and $a \approx 14.5$ cm.

$A \approx$ _____



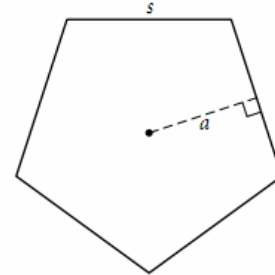
2. $s = 4.2$ cm and $A \approx 197$ cm².

$a \approx$ _____



3. $a = 6$ cm and $A \approx 130.8$ cm².

$p \approx$ _____



4. In a regular n -gon, $s = 4.8$ cm, $a \approx 7.4$ cm, and $A \approx 177.6$ cm². Find n .

Lesson 8.4 – Areas of circles

In Exercises 1–3, leave your answers in terms of π .

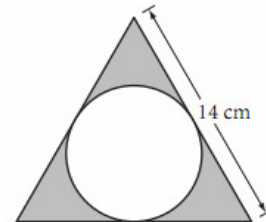
1. If $d = 6.4$ cm, $A =$ _____. 2. If $A = 529\pi$ cm², $r =$ _____.
 3. If $C = 36\pi$ cm, $A =$ _____.

In Exercises 4–11, round your answers to the nearest 0.01 unit.

4. If $r = 7.8$ cm, $A =$ _____. 5. If $A = 136.46$, $C =$ _____.
 6. If $d = 3.12$, $A =$ _____.

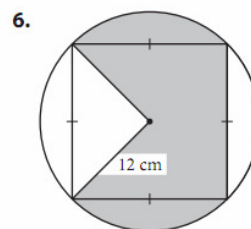
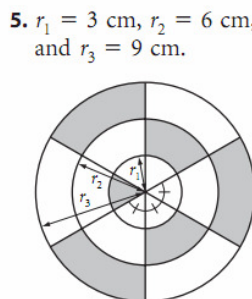
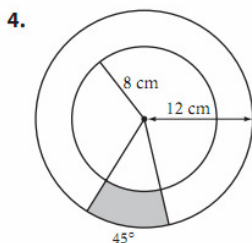
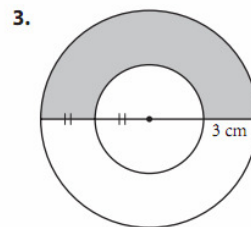
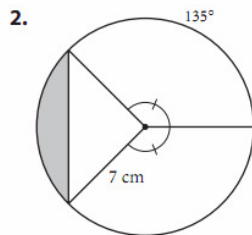
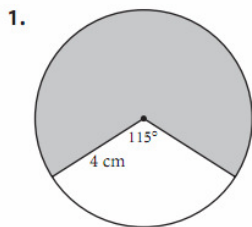
For Exercises 7 and 8, refer to the figure of a circle inscribed in an equilateral triangle.

7. Find the area of the inscribed circle. 8. Find the area of the shaded region.



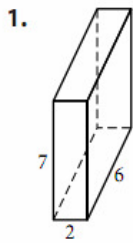
Lesson 8.5 – Area problems

In Exercises 1–6, find the area of the shaded region. Round your answers to the nearest 0.01 cm².

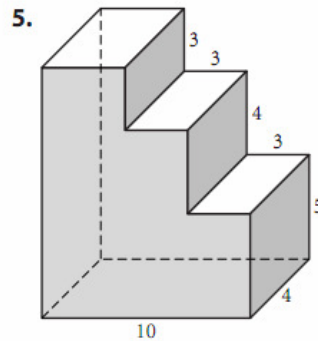
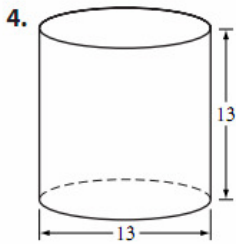
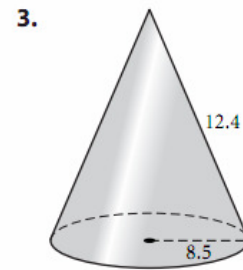
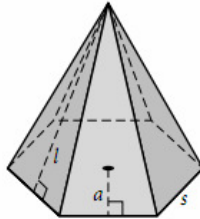


Lesson 8.6 – Surface area

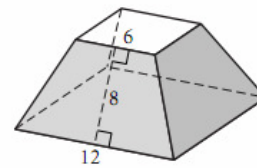
In Exercises 1–7, find the surface area of each solid. All quadrilaterals are rectangles, and all measurements are in centimeters. Round your answers to the nearest 0.1 cm².



2. Base is a regular hexagon.
 $s = 6$, $a \approx 5.2$, and $l = 9$.



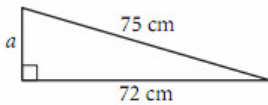
6. Both bases are squares.



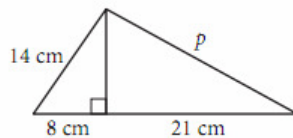
Lesson 9.1 – Pythagorean theorem

Give all answers rounded to the nearest 0.1 unit.

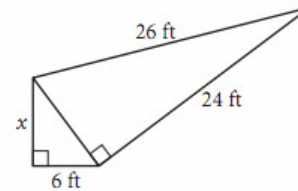
1. $a = \underline{\hspace{2cm}}$



2. $p = \underline{\hspace{2cm}}$

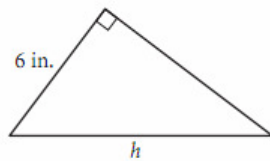


3. $x = \underline{\hspace{2cm}}$

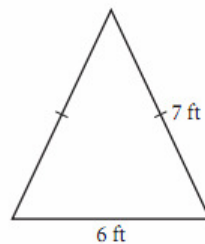


4. Area = 39 in.²

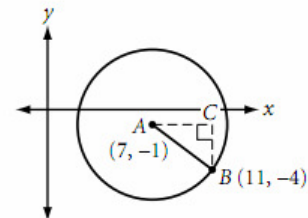
$h = \underline{\hspace{2cm}}$



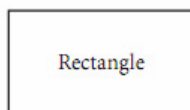
5. Find the area.



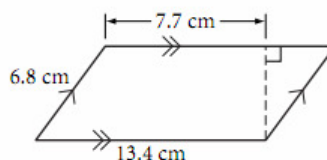
6. Find the coordinates of C and the radius of the circle.



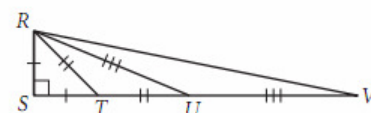
7. Find the length of the diagonal. $P = 68$ cm and $A = 144$ cm².



8. Find the area.



9. $RS = 3$ cm. Find RV .

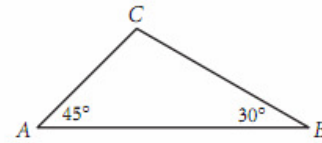


Lesson 9.3 – 30-60-90 and 45-45-90 triangles

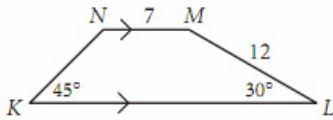
Give your answers in exact form unless otherwise indicated.

For Exercises 1 and 2, refer to $\triangle ABC$.

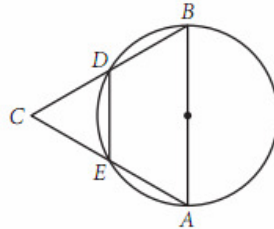
1. If $BC = 60$, then $AC = \underline{\hspace{2cm}}$, $AB = \underline{\hspace{2cm}}$, and area $\triangle ABC = \underline{\hspace{2cm}}$.
2. If $BC = 60\sqrt{2}$, then $AC = \underline{\hspace{2cm}}$, $AB = \underline{\hspace{2cm}}$, and area $\triangle ABC = \underline{\hspace{2cm}}$.



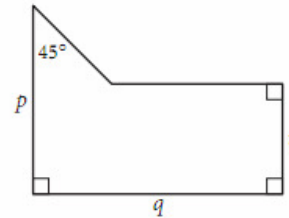
3. Find the perimeter and area of $KLMN$.



4. $\triangle ABC$ is equilateral. $AB = 18$. Find the area of $ABDE$.



5. Find the area in terms of p , q , and r .



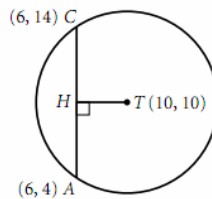
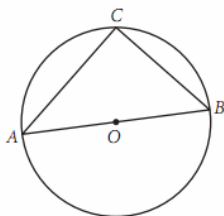
Lesson 9.5 – The distance formula

In Exercises 3–8, use the distance formula and the slope of segments to identify the type of quadrilateral. Explain your reasoning.

3. $A(-2, 1)$, $B(3, -2)$, $C(8, 1)$, $D(3, 4)$
4. $P(-2, 7)$, $Q(-3, -2)$, $R(6, -1)$, $S(7, 8)$
5. $K(7, 3)$, $L(0, 2)$, $M(-1, -5)$, $N(7, -5)$
6. $E(4, 0)$, $F(16, 4)$, $G(7, 7)$, $H(-5, 3)$
7. $W(17, -6)$, $X(9, 3)$, $Y(0, -5)$, $Z(8, -14)$
8. $T(-3, -3)$, $U(4, 4)$, $V(0, 6)$, $W(-5, 1)$
9. Find the equation of the circle whose diameter has endpoints $(4, -6)$ and $(-4, 0)$.

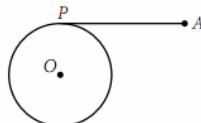
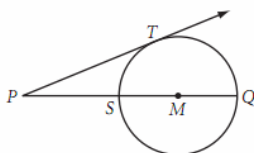
Lesson 9.6 – Circles & the Pythagorean Theorem

1. $AO = 7$. $AC = 8$. Find CB .
2. What's wrong with this picture?



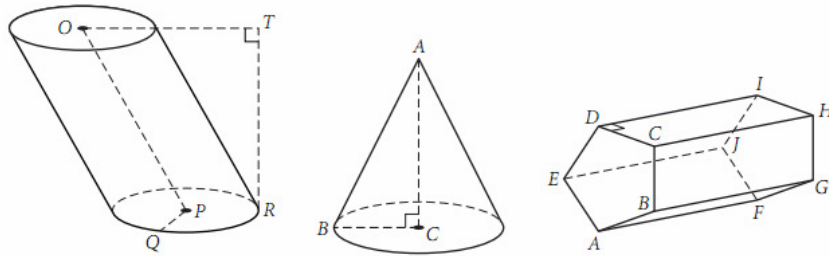
3. $MQ = 9$. $PS = 4$. Find PT , PT^2 , and $(PS \cdot PQ)$. Explain why, in general, $PT^2 = PS \cdot PQ$.

4. $AP = 63$ cm. Radius of circle $O = 37$ cm. How far is A from the circle?



10.1 – Geometry of solids

For Exercises 1–14, refer to the figures below.

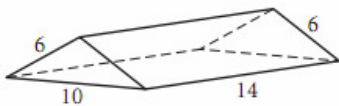


1. The cylinder is (oblique, right).
2. \overline{OP} is _____ of the cylinder.
3. \overline{TR} is _____ of the cylinder
4. Circles O and P are _____ of the cylinder.
5. \overline{PQ} is _____ of the cylinder.
6. The cone is (oblique, right).
7. Name the base of the cone.
8. Name the vertex of the cone.
9. Name the altitude of the cone.
10. Name a radius of the cone.
11. Name the type of prism.
12. Name the bases of the prism.
13. Name all lateral edges of the prism.
14. Name an altitude of the prism.

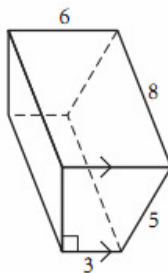
10.2 – Volume of prisms and cylinders: $V = A_{\text{base}} \cdot H$

In Exercises 1–3, find the volume of each prism or cylinder. All measurements are in centimeters. Round your answers to two decimal places.

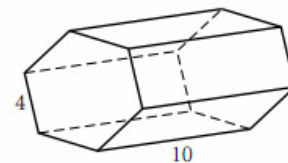
1. Right triangular prism



2. Right trapezoidal prism

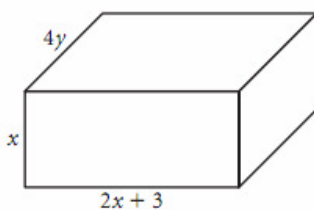


3. Regular hexagonal prism

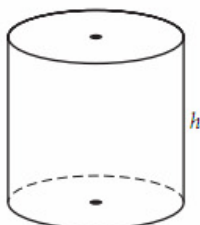


In Exercises 4–6, use algebra to express the volume of each solid.

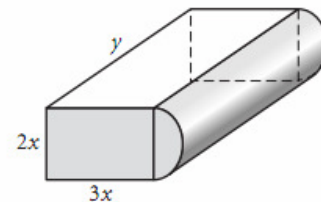
4. Right rectangular prism



5. Right cylinder;
base circumference = $p\pi$



6. Right rectangular prism and half of a cylinder

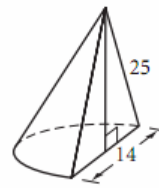
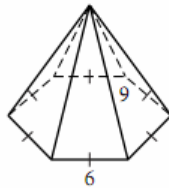
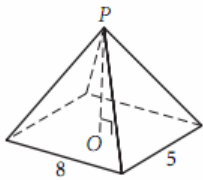


Geometry

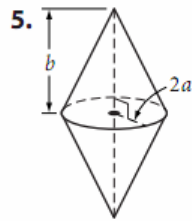
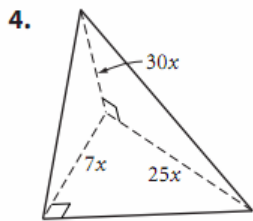
10.3 – Volume of pyramids and cones: $V = \frac{1}{3}A_{\text{base}} \cdot H$

In Exercises 1–3, find the volume of each solid. All measurements are in centimeters. Round your answers to two decimal places.

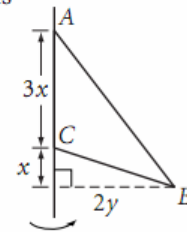
1. Rectangular pyramid; $OP = 6$ 2. Right hexagonal pyramid 3. Half of a right cone



In Exercises 4–6, use algebra to express the volume of each solid.

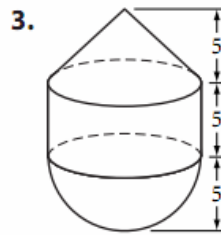
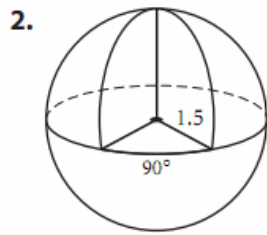
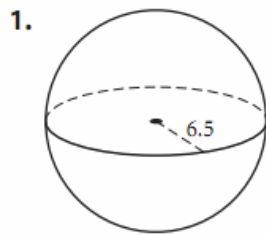


6. The solid generated by spinning $\triangle ABC$ about the axis

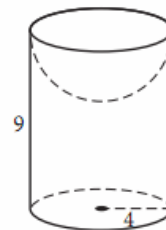


10.6 – Volume of a sphere: $V = \frac{4}{3}\pi r^3$

In Exercises 1–4, find the volume of each solid. All measurements are in centimeters. Round your answers to 0.1 cm^3 .



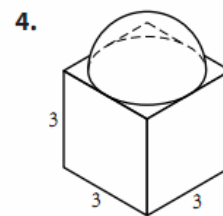
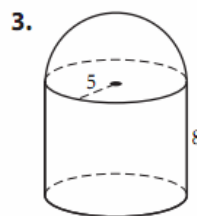
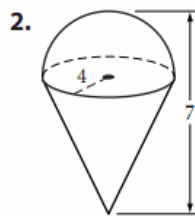
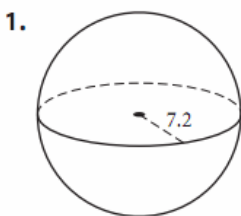
4. Cylinder with hemisphere taken out of the top



5. A sphere has volume $221\frac{5}{6}\pi \text{ cm}^3$. What is its diameter?

10.7 – Surface area a sphere: $SA = 4\pi r^2$

In Exercises 1–4, find the volume and total surface area of each solid. All measurements are in centimeters. Round your answers to the nearest 0.1 cm.



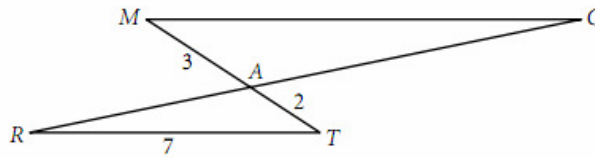
5. If the surface area of a sphere is $196\pi \text{ cm}^2$, find its volume.

11.2 – Similar triangles

All measurements are in centimeters.

1. $\triangle TAR \sim \triangle MAC$

$MC = \underline{\hspace{2cm}}$

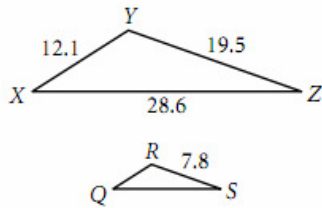


2. $\triangle XYZ \sim \triangle QRS$

$\angle Q \cong \underline{\hspace{2cm}}$

$QR = \underline{\hspace{2cm}}$

$QS = \underline{\hspace{2cm}}$

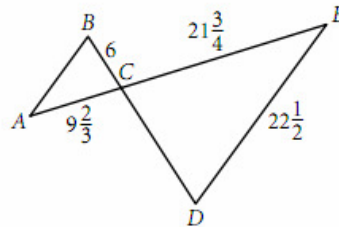


3. $\triangle ABC \sim \triangle EDC$

$\angle A \cong \underline{\hspace{2cm}}$

$CD = \underline{\hspace{2cm}}$

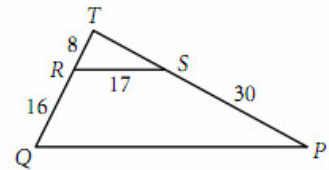
$AB = \underline{\hspace{2cm}}$



4. $\triangle TRS \sim \triangle TQP$

$TS = \underline{\hspace{2cm}}$

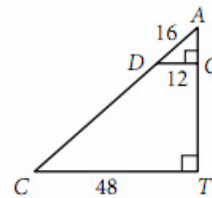
$QP = \underline{\hspace{2cm}}$



For Exercises 5 and 6, refer to the figure at right.

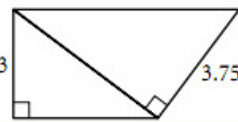
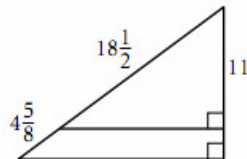
5. Explain why $\triangle CAT$ and $\triangle DAG$ are similar.

6. $CA = \underline{\hspace{2cm}}$



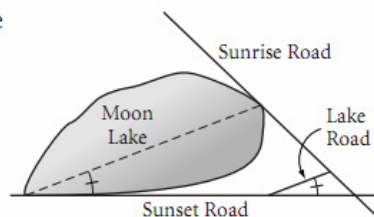
7. $x = \underline{\hspace{2cm}}$

8. Are the two triangles similar?
Explain why or why not.



11.3 – Using similar triangles

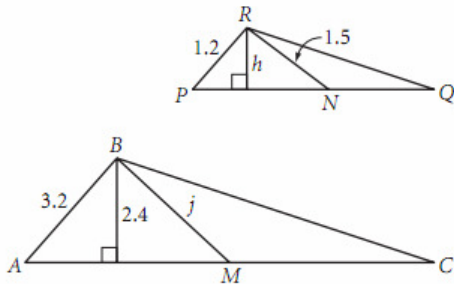
- At a certain time of day, a 6 ft man casts a 4 ft shadow. At the same time of day, how tall is a tree that casts an 18 ft shadow?
- If a 5 ft 10 in. person casts a 7 ft 4 in. shadow, how tall is a person who, at the same time, casts a 6 ft 8 in. shadow? Give your answer to the nearest inch.
- Driving through the mountains, Dale has to go up and over a high mountain pass. The road has a constant incline for $7\frac{3}{4}$ miles to the top of the pass. Dale notices from a road sign that in the first mile he climbs 840 feet. What is the height of the mountain pass? (5280 ft = 1 mi)
- Sunrise Road is 42 miles long between the edge of Moon Lake and Lake Road and 15 miles long between Lake Road and Sunset Road. Lake Road is 29 miles long. Find the length of Moon Lake.



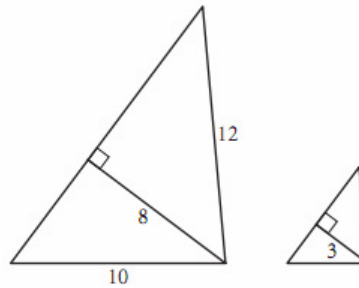
11.4 – Proportions in similar triangles

All measurements are in centimeters.

1. $\triangle ABC \sim \triangle PRQ$. M and N are midpoints. Find h and j .



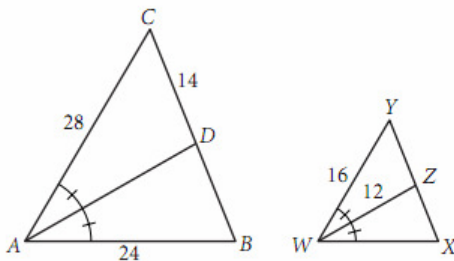
2. The triangles are similar. Find the length of the three sides of the smaller triangle to two decimal places.



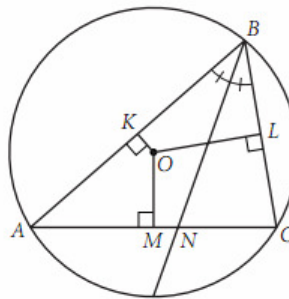
3. Median \overline{AD} of $\triangle ABC$ has measure 12.4 cm. Median $\overline{A'D'}$ of the dilation image $\triangle A'B'C'$ has measure 3.1 cm. If $AB = 16.8$ cm, $A'B' = \underline{\hspace{2cm}}$.

4. $\triangle ABC \sim \triangle WXY$

$WX = \underline{\hspace{2cm}}$ $AD = \underline{\hspace{2cm}}$
 $DB = \underline{\hspace{2cm}}$ $YZ = \underline{\hspace{2cm}}$
 $XZ = \underline{\hspace{2cm}}$

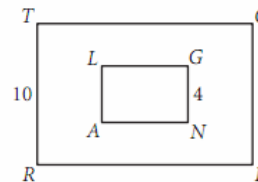
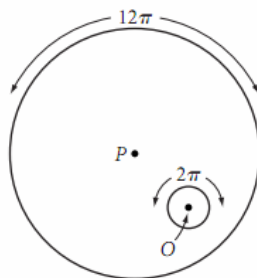
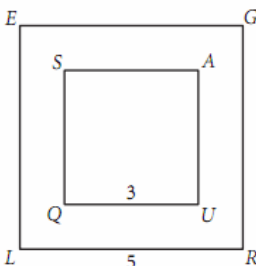


5. $BK = 6$ cm, $BL = 4$ cm, and $MN = 1$ cm. Find AC .



11.5 – Area and Volume ratios

5. $\frac{\text{Area of square } SQUA}{\text{Area of square } LRGE} = \underline{\hspace{2cm}}$ 6. $\frac{\text{Area of circle } P}{\text{Area of circle } O} = \underline{\hspace{2cm}}$ 7. $RECT \sim ANGL$
 $\frac{\text{Area of } RECT}{\text{Area of } ANGL} = \underline{\hspace{2cm}}$

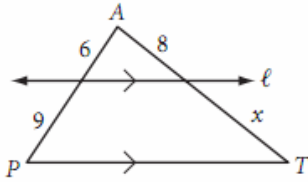


8. The ratio of the corresponding midsegments of two similar trapezoids is 4:5. What is the ratio of their areas?
9. The ratio of the areas of two similar pentagons is 4:9. What is the ratio of their corresponding sides?
10. The corresponding heights of two similar cylinders is 2:5. What is the ratio of their volumes?
11. The ratio of the weights of two spherical balls is 27:64. What is the ratio of their radii?

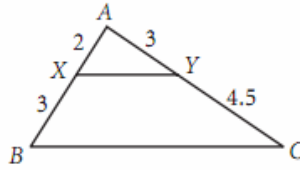
11.6 – Proportional segments between parallel lines

All measurements are in centimeters.

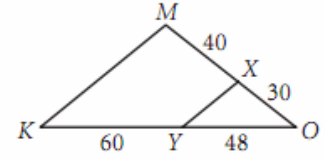
1. $x = \underline{\hspace{2cm}}$



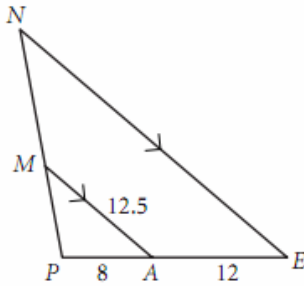
2. Is $\overline{XY} \parallel \overline{BC}$?



3. Is $\overline{XY} \parallel \overline{MK}$?



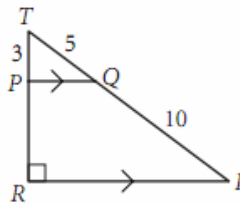
4. $NE = \underline{\hspace{2cm}}$



5. $PR = \underline{\hspace{2cm}}$

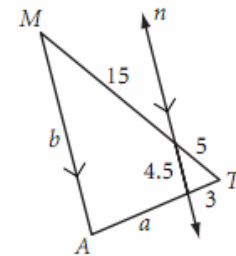
$PQ = \underline{\hspace{2cm}}$

$RI = \underline{\hspace{2cm}}$



6. $a = \underline{\hspace{2cm}}$

$b = \underline{\hspace{2cm}}$



Chapter 12 – Intro to Trigonometry. See handout 12.1 & 12.2.