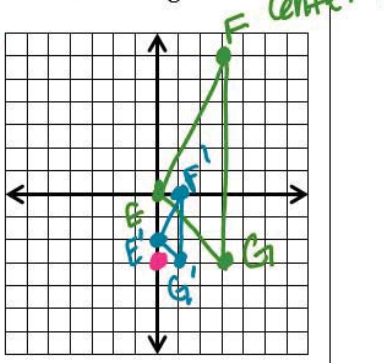
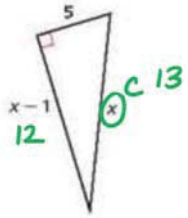
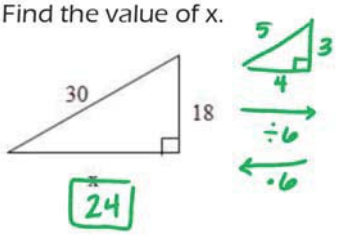
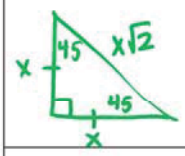
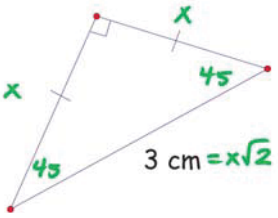
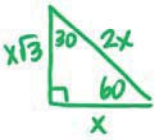
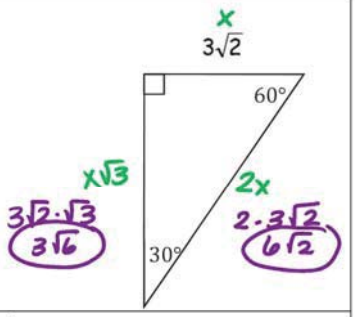
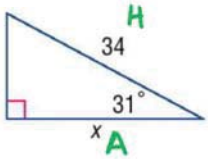
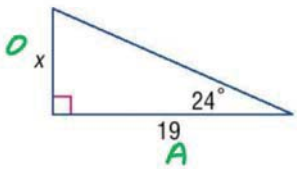
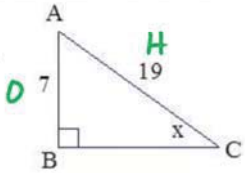
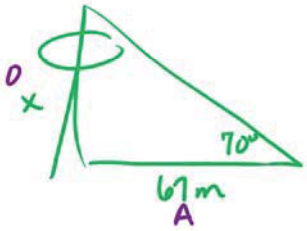
Dilate a triangle in the coordinate plane with a given scale factor. ① find vectors from center to pts. ② multiply vectors by the scale factor ③ plot new pts. from the center with new vectors	Triangle *EFG* has vertices *E*(0, 0), *F*(3, 6), and *G*(3, -3). Find the coordinates of the image, after a dilation about the point (0,-3) (center) with a scale factor $\frac{1}{3}$. How does this differ from having a scale factor of 3? ① $E\langle 0,3\rangle \cdot 1/3 = E'\langle 0,1\rangle$ $F\langle 3,9\rangle \cdot 1/3 = F'\langle 1,3\rangle$ $G\langle 3,0\rangle \cdot 1/3 = G'\langle 1,0\rangle$ *if the scale factor was 3 the figure would enlarge 

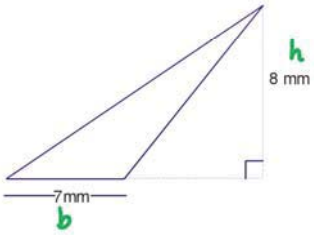
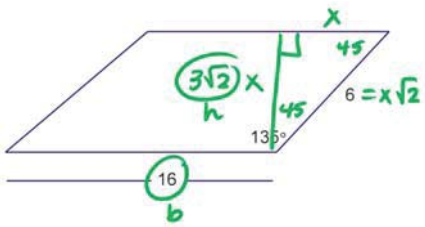
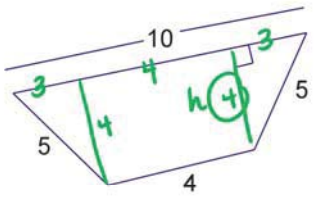
CHAPTER 8: RIGHT TRIANGLES

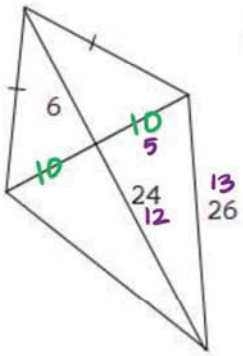
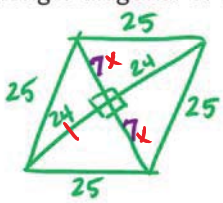
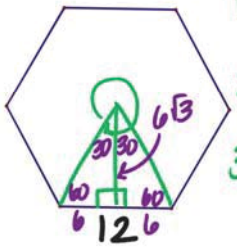
What I Need to Know	Example
5.7 Pythagorean Theorem	
Use the Pythagorean theorem and its converse to solve problems. $a^2 + b^2 = c^2$	Find the value of x.  $(x-1)^2 + 5^2 = x^2$ $(x-1)(x-1) + 25 = x^2$ $x^2 - 2x + 1 + 25 = x^2$ $x^2 - 2x + 26 = x^2$ $-2x + 26 = 0$ $-2x = -26$ $x = 13$
Identify and use the Pythagorean Triples to solve triangles. 3, 4, 5 5, 12, 13 7, 24, 25 8, 15, 17	Find the value of x.  ÷6 ·6
Use the Pythagorean Inequality Theorem to classify triangles. 1st Δ? $a+b>c$ 2nd Type: $c^2 > a^2+b^2$ obtuse $c^2 < a^2+b^2$ acute	Tell if the measures can be side lengths of a right triangle. If so, classify the triangle as acute, obtuse, or right. 7, 10, and 12 1st Δ? $7+10>12$ $17>12$ ✓ yes 2nd Type: $12^2 ? 7^2+10^2$ $144 < 149$ acute Δ

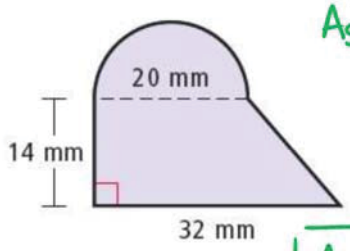
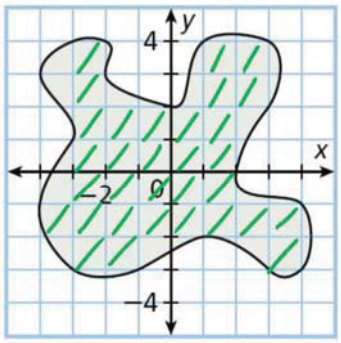
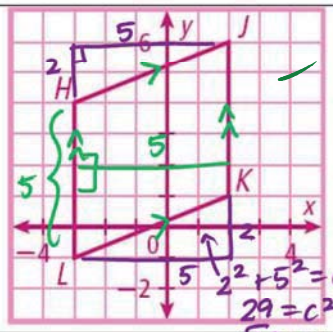
What I Need to Know	Example
5.8 Special Right Triangles	
Find side lengths of a 45º –45º– 90º triangle. X X X√2 	Find the missing side lenghts. $\frac{x\sqrt{2}}{\sqrt{2}} = \frac{3}{\sqrt{2}}$ $x = \frac{3}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$ $x = \frac{3\sqrt{2}}{2}$ 
Find side lengths of a 30º–60º – 90º triangle. X X√3 2X 	Find the missing side lengths. 
What I Need to Know	Example
8.2 Trigonometric Ratios	
Use trig ratios to find side lengths of a right triangle. $S\frac{O}{H}\ C\frac{A}{H}\ T\frac{O}{A}$ *make sure you are in degree mode*	Find x.  $\frac{\cos 31}{1} = \frac{x}{34}$ $x = 34 \cdot \cos 31$ $x \approx 29.14$  $\frac{\tan 24}{1} = \frac{x}{19}$ $x = 19 \cdot \tan 24$ $x \approx 8.46$
What I Need to Know	Example
8.3 Solve Right Triangles	
Use a calculator to find an angle measure, given a trigonometric ratio. $S\frac{O}{H}\ C\frac{A}{H}\ T\frac{O}{A}$ * Degree mode * use inverse trig when trying to find the ∠	Find x.  $\sin x = \frac{7}{19}$ $x = \sin^{-1}\left(\frac{7}{19}\right)$ $x \approx 21.6°$

What I Need to Know	Example
8.4 Angle of Elevation & Depression	
Solve real world problems using trigonometry.	The Seattle Space Needle casts a 67-meter shadow. If the angle of elevation from the tip of the shadow to the top of the Space Needle is 70°, how tall is the Space Needle? Round to the nearest meter.  $\tan 70 = \frac{x}{67}$ $x = 67 \tan 70$ $x \approx 184$ meters

CHAPTER 10: PERIMETER & AREA

What I Need to Know	Example
10.1 Area of a Triangle, Parallelogram, Trapezoid, Rhombus, and Kite	
Find the area of a triangle. $A = \frac{b \cdot h}{2}$	 $A = \frac{7 \cdot 8}{2}$ $A = 28\ mm^2$
Find the area of a parallelogram. $A = b \cdot h$	 $x\sqrt{2} = 6$ $x = \frac{6}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$ $x = 3\sqrt{2}$ $A = b \cdot h$ $= 16 \cdot 3\sqrt{2}$ $= 48\sqrt{2}\ u^2$
Find the area of a trapezoid. $A = \frac{b_1 + b_2}{2} \cdot h$ $A = M \cdot h$ ↑median	 $A = \frac{b_1 + b_2}{2} \cdot h$ $= \frac{4+10}{2} \cdot 4$ $= 7 \cdot 4$ $= 28\ u^2$

What I Need to Know	Example
10.2 Area of Regular Polygons and Circles	
Find the area of a kite. $A = \frac{d_1 \cdot d_2}{2}$	 $d_1 = 30$ $d_2 = 20$ $A = \frac{d_1 \cdot d_2}{2}$ $= \frac{30 \cdot 20}{2}$ $= 300 u^2$
Find the area of a rhombus. $A = \frac{d_1 \cdot d_2}{2}$ or $A = b \cdot h$	Find the area of a rhombus that has a perimeter of 100 and longer diagonal of 48.  $d_1 = 48$ $d_2 = 14$ $A = \frac{d_1 \cdot d_2}{2}$ $= \frac{48 \cdot 14}{2}$ $= 336 u^2$
Find the area of a regular polygon. $A = \frac{1}{2}ap$ a = apothem p = perimeter or Find area of 1 Δ and mult. by # of Δ's	Find the area of the regular hexagon with a side length of 12.  1st $\frac{360}{6} = 60°$ 2nd $\frac{60}{2} = 30°$ 3rd $A = \frac{1}{2}(6\sqrt{3})(72)$ $A = 216\sqrt{3} u^2$
Find the area/circumference of a circle given the circumference/area. $A = \pi r^2$ $C = \pi d$ or $C = 2\pi r$	If the area of a circle is 64π cm^2 find the circumference of the circle. $A = \pi r^2$ $64\pi = \pi r^2$ $64 = r^2$ $\pm 8 = r$ $C = \pi d$ $C = 16\pi$ cm

What I Need to Know	Example
10.3 Area of Composite Figures	
Find the area of composite figures. • Break into 'simple' shapes • Calculate areas separately • Add/subtract areas based off of figure	Find the area of the shaded region.  $A_{semi} = \frac{\pi r^2}{2}$ $= \frac{\pi(10)^2}{2}$ $= \frac{100\pi}{2}$ $= 50\pi \text{ mm}^2$ $A_{Trap} = \frac{b_1+b_2}{2} \cdot h$ $= \frac{20+32}{2} \cdot 14$ $= \frac{52}{2} \cdot 14$ $= 364 \text{ mm}^2$ $A_{Figure} = (50\pi + 364)\text{mm}^2$
What I Need to Know	Example
10.4 Perimeter and Area in the Coordinate Plane	
Estimate the area of irregular shapes in the coordinate plane. • Count # of whole squares • Count # of ½ squares	Find the area of the irregular figure. whole: 32 ½s: 13 Total $\approx 32 + \frac{1}{2}(13)$ $\approx 38.5 \text{ u}^2$ 
Find perimeter and area of a polygon in the coordinate plane.	Parallelogram since both pairs of opp sides ll $A = b \cdot h$ $= 5 \cdot 5$ $= 25 \text{ u}^2$ $P = 5 + 5 + \sqrt{29} + \sqrt{29}$ $P = (10 + 2\sqrt{29})\text{u}$  $2^2 + 5^2 = c^2$ $29 = c^2$ $\sqrt{29} = c$
What I Need to Know	Example
10.5 Effects of Changing Dimensions	
Describe the effects of changing one dimension.	The base of a triangle is cut in half. Describe the effect on the area of the triangle. Area of △ is cut in ½. ↑ multiplied by scale factor