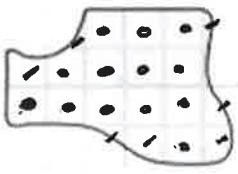
ANSWER KEY

Chapter 8 Test Review

(Lessons 8-1 through 8-6)

Estimate the area of each shaded region. Each square represents 50 in.^{2}.



□ full squares = 13

△ part squares = 7

↳ about 2 full □s

13 + 2 = 15 full squares

$$\begin{array}{r} {}^{2}15 \\ \times\ 50 \\ \hline 750 \end{array}$$

750 in^2

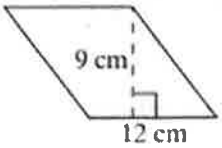
Choose a reasonable estimate.

Height of a cup:	6 ft or (6 in)
Length of a marker:	(15 cm) or 15 m
Depth of a pool:	(2 m) or 2 cm
Distance from Raleigh to Durham:	(20 mi) or 20 yd
Length of a classroom:	(5 m) or 5 km

Complete the chart below.

Shape	Formula for Area
Rectangle	$l \times w$
Parallelogram	$b \cdot h$
Triangle	$\frac{1}{2} b \cdot h$
Trapezoid	$\frac{1}{2}(b_1 + b_2) \cdot h$

Find the area of the figure.



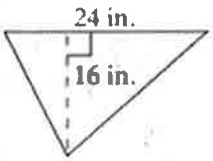
$A = b \cdot h$

$= 12 \cdot 9$

$= \boxed{108 \text{ cm}^2}$

↑ don't forget your units^2!

Find the area of the figure.



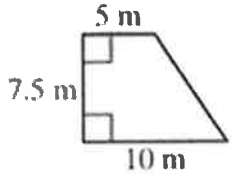
$A = \frac{1}{2} b \cdot h$

$= \frac{1}{2}(24 \cdot 16)$

$= \frac{1}{2}(384)$

$= \boxed{192 \text{ in}^2}$

Find the area of the figure.



$A = \frac{1}{2}(b_1 + b_2) \cdot h$

$= \frac{1}{2}(10+5) \cdot 7.5$

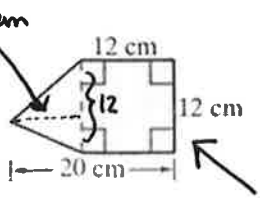
$= \frac{1}{2}(15) \cdot 7.5$

$= \frac{1}{2}(112.5)$

$= \boxed{56.25\ m^2}$

Find the area of the figure. → Find the A of triangle and A of square. Then add together.

$\begin{array}{r} {}^{1}\not{2}0 \\ -\ 12 \\ \hline 8 \end{array}$



Square: $l \times w$

$= 12 \times 12$

$= 144\ cm^2$

Triangle: $\frac{1}{2} b \cdot h$

$= \frac{1}{2}(12 \cdot 8)$

$= \frac{1}{2}(96)$

$= 48\ cm^2$

$\begin{array}{r} {}^{1}144 \\ +\ 48 \\ \hline 192 \end{array}$

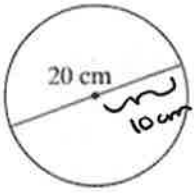
$\boxed{192\ cm^2}$

Complete the chart below.

Shape	Formula for Area
Circumference of a Circle	πd
Area of a Circle	πr^2

$\pi = 3.14$

Find the circumference and area of the circle.



Circumference: πd

$\pi(20) = \boxed{62.8 \text{ cm}}$

Area: πr^2

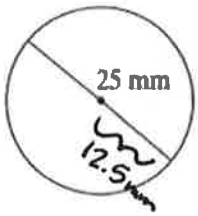
This is not the radius, don't forget to take $\frac{1}{2}$ of the diameter!

$\pi(10^2)$

$\pi(100)$

$= \boxed{314 \text{ cm}^2}$

Find the circumference and area of the circle.



Circumference: πd

$\pi(25)$

$= \boxed{78.5 \text{ cm}}$

Area: πr^2

$\pi(12.5^2)$

$\pi(156.25)$

$= \boxed{490.625 \text{mm}^2}$

Find each square or square root.

1. $2^2 = 4$
2. $10^2 = 100$
3. $7^2 = 49$
4. $13^2 = 169$

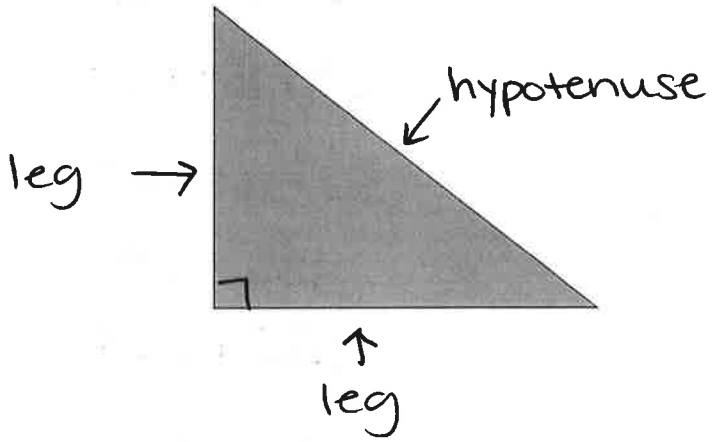
5. $\sqrt{9} = 3$
6. $\sqrt{121} = 11$
7. $\sqrt{64} = 8$
8. $\sqrt{25} = 5$

Think: $n^2 = 64$

$n \cdot n = 64$

$8 \cdot 8 = 64$

Label the *legs* and the *hypotenuse* of the right triangle.



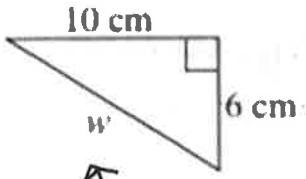
What is the formula for the Pythagorean Theorem?

$a^2 + b^2 = c^2$

legs

hypotenuse

Find the missing length.



$a^2 + b^2 = c^2$

$6^2 + 10^2 = c^2$

$36 + 100 = c^2$

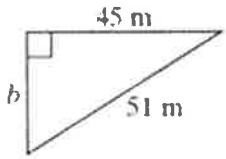
$136 = c^2$

$\sqrt{136} = \sqrt{c^2}$

$11.66 = c$

$w = 11.66\text{ cm}$

Find the missing length.



$a^2 + b^2 = c^2$

$45^2 + b^2 = 51^2$

$2{,}025 + b^2 = 2{,}601$

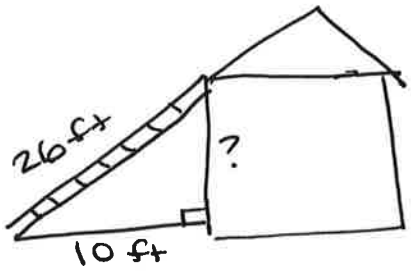
$-2{,}025 \qquad -2{,}025$

$b^2 = 576$

$\sqrt{b^2} = \sqrt{576}$

$b = 24\text{m}$

Ladders A ladder 26 ft long is placed 10 ft from the base of a house. How high up the side of the house does the ladder reach?



$a^2+b^2=c^2$

$10^2+b^2=26^2$

$100+b^2=676$

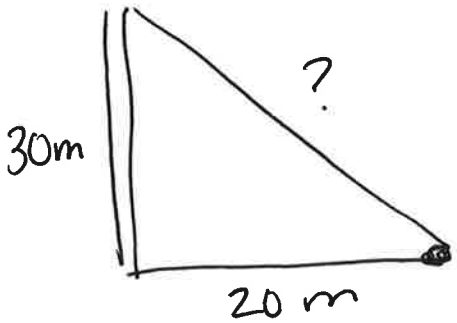
$-100 \quad -100$

$b^2=576$

$\sqrt{b^2}=\sqrt{576}$

$b=24$

Support Cables A support cable connects the top of a 30-m pole to an anchor 20 m from the base of the pole. How long is the support cable, to the nearest tenth of a meter?



$a^2+b^2=c^2$

$30^2+20^2=c^2$

$900+400=c^2$

$1300=c^2$

$\sqrt{1300}=\sqrt{c^2}$

$36.06\text{ m}=c$