Unit F:
Perimeter & Area
Geometry 2nd Semester

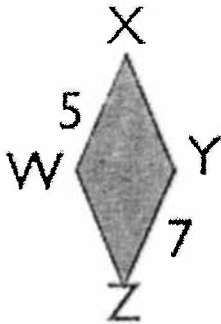**DRABBLE** By Kevin Fagan

Lesson 8-1: Perimeter

Vocabulary

Perimeter: _____

_____

Equilateral Polygon Perimeter Formula: _____

_____

Practice

1. Kite WXYZ with ends X and Z has side lengths as shown. Find its perimeter.

2. A rectangular park is 500 feet long and 220 feet wide. What is the perimeter of the park?

3. Most rectangular flags are about 1.6 times as long as they are wide. If you have 10 meters of border material to strengthen the edges of the flag, about how large of a flag can you make?

4. A flower garden is shaped like a kite and requires 50 feet of edging to surround it. If one side is 4 times as long as the other, what are the dimensions?

5. Find the perimeter of the given figure.

(0,42)   (26,42)

(54, 23)

(26,23)

(54,0)
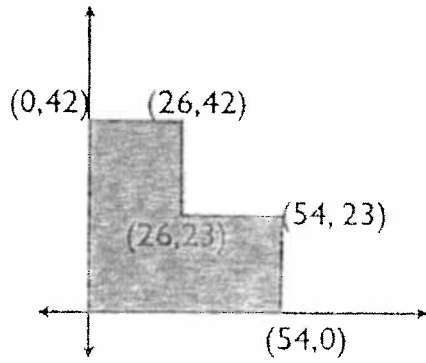
6. Find the perimeter of a regular hexagon with side length 4.

7. Find the perimeter of a regular decagon with side length h.

8. Find the perimeter of a regular nonagon with side length $7t$.

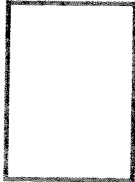# Lesson 8-2: Area

Vocabulary

Area: _____

_____

Area Postulate:

   a) Uniqueness Property: _____

_____

   b) Congruence Property: _____

_____

   c) Additive Property: _____

_____

Formulas

Type	Figure	Formula	Variable Meanings
Area	Rectangle		
	Square		

Practice

1.   The floor plan of a ranch house is shown.

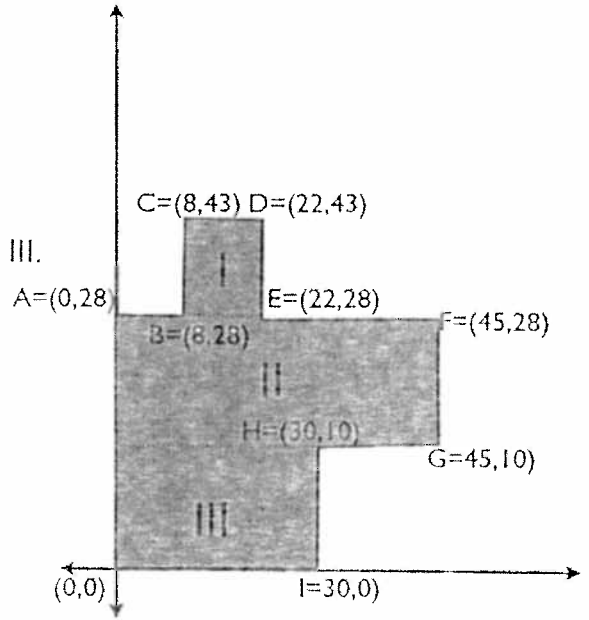   a.   Find the dimensions of rooms I, II, and III.
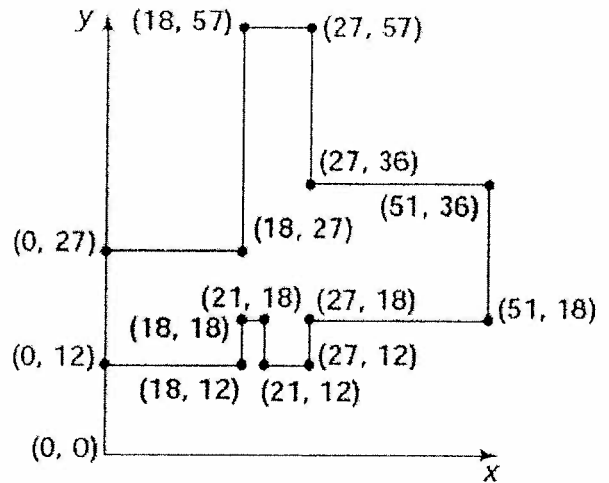
        Room I:

        Room II:

        Room III:

    b.   Find the floor area of the house.

C=(8,43) D=(22,43)

A=(0,28)   E=(22,28)   F=(45,28)

B=(8,28)

H=(30,10)   G=45,10)

(0,0)   I=30,0)

2.   Find the area of the region at the right.

y   (18, 57)   (27, 57)

(27, 36)

(51, 36)

(0, 27)   (18, 27)

(21, 18) (27, 18)   (51, 18)

(18, 18)
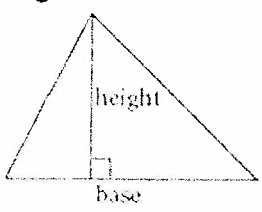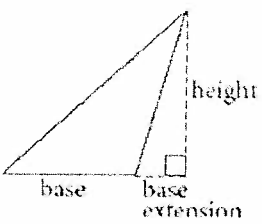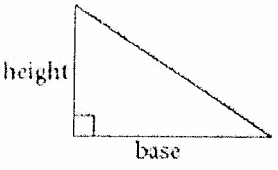
(0, 12)   (27, 12)

(18, 12) (21, 12)

(0, 0)   x

3.   A carpet dealer advertises a particular carpet for $18.95 a square yard. How much will it cost to carpet a rectangular room 9 ft wide by 12 ft long? (*Notice: 3 ft = 1 yd, 9 squared feet = 1 square yard)

4.   A playground is 50 yards by 100 yards. If a roll of sod that is 72 inches long and 18 inches wide costs $1.59, about how much will it cost to sod the field?
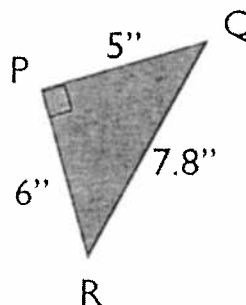
Lesson 8-4: Area of Triangles

Formulas

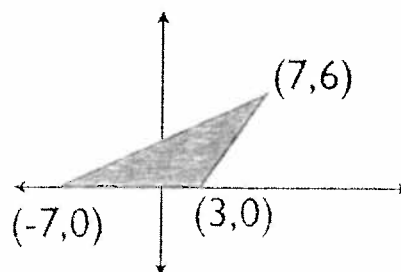| Type	Figure	Formula	Variable Meanings
Area	Triangle		

Practice

1. Find the area of the triangle.

2. A right triangle has legs 2.1 meters and 3.9 meters. What is its area?
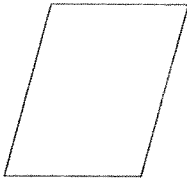
3. Find the length of a side of a triangle with area 25 and altitude of 10.

4. Find the area of the given triangle.
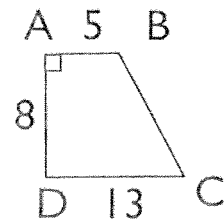
Lesson 8-5: Area of Trapezoids

Formulas

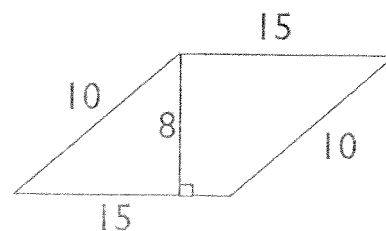| Type	Figure	Formula	Variable Meanings
Area	Trapezoid		
	Parallelogram		

Practice

1. How do you find the formula for the area of a trapezoid from the formula for the area of a triangle?
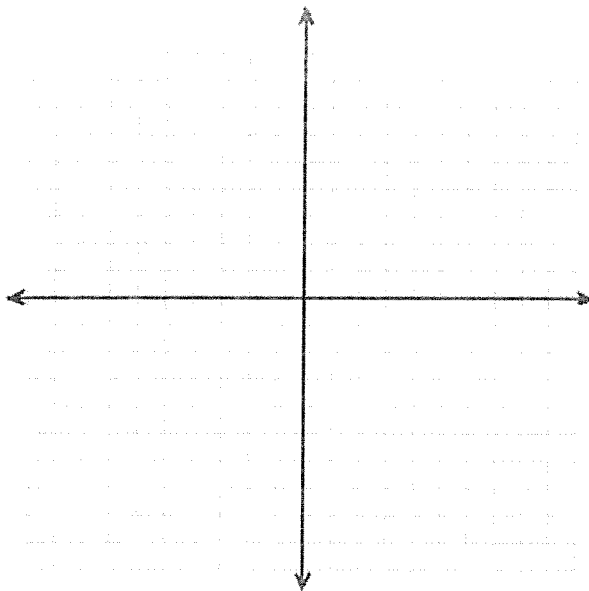
2. Find the area of trapezoid *ABCD*.

   A 5 B
   8
   D 13 C

3. Find the area of the parallelogram.

   15
   10
   8
   10
   15

4. An isosceles trapezoid has an area of 240 and a height of 8. Give two possible combinations of lengths for the bases of the trapezoid.

5. Parallelogram *WXYZ* has vertices *W*(-5, 7), *X*(5, 7), *Y*(8, 2), and *Z*(-2, 2). What is the area of the parallelogram?

Lesson 8-6: Pythagorean Theorem
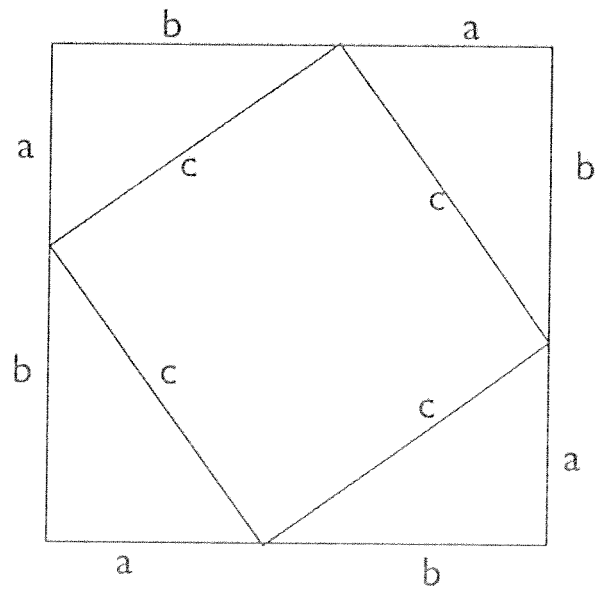
Vocabulary

Pythagorean Theorem: _____

_____

    <u>Example</u>

Pythagorean Converse Theorem: _____
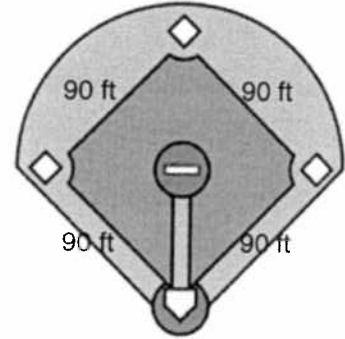
_____

Pythagorean Triple: _____

_____

Proof of the Pythagorean Theorem:

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

Practice

1. You picked up a ground ball at first base, and you see the other team's player running towards third base. How far do you have to throw the ball to get it from first base to third base to throw out the runner?
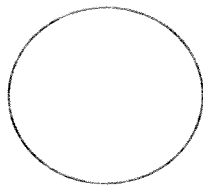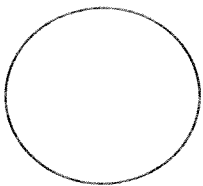
90 ft   90 ft

90 ft   90 ft

2. You are locked out of your house and the only open window is on the second floor, 25 feet above the ground. You need to borrow a ladder from one of your neighbors. There's a bush along the edge of the house, so you'll have to place the ladder 10 feet from the house. What length of ladder do you need to reach the window?

3. Are the numbers 11, 20, and 23 a Pythagorean Triple?

4. Find the length of the missing side on the right triangle, then find the area.

3.7"

11.8"
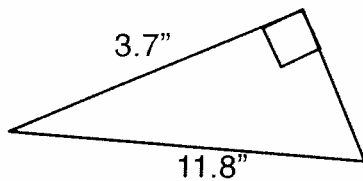
Lesson 8-7: Arc Length & Circumference

Vocabulary

Type	Figure	Formula	Variable Meanings
Perimeter	Circumference		
	Arc Length		

"Exact Answers": _____
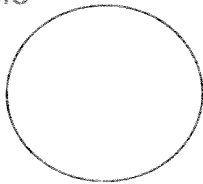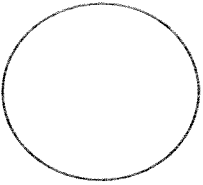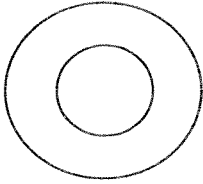
"Rounded Answers": _____

Practice

1. A bike wheel has a diameter of 22 inches. If a rider can get it to go 200 revolutions per minute, how far will the bike travel in that time? Give an exact answer and a rounded answer.

2. In $\odot O$, $OB = 1.3$cm and $m\angle AOB = 80$. Find the length of AB.

3. An ant is crawling along the crust of a large piece of 16" diameter pizza. The piece has a central angle of $45°$. How much farther does that ant crawl than another ant who is on a medium piece of 12" diameter pizza, with central angle $45°$?

Lesson 8-8: The Area of a Circle

Formulas

Type	Figure	Formula	Variable Meanings
Area	Circle		
	Sector of Circle		
	Bullseye Probability		

Practice

1. Find the area of a sewer cover with diameter 22".

2. In Olympic archery, the target's bullseye has a radius of 4 cm and the radius of the outside of the target is 80 cm. What is the probably that an arrow shot hitting the target randomly hits the bullseye?

3. In ⊙O, the radius is 15. Find the area of a sector with central angle 30°.
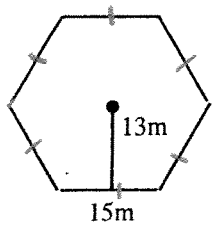
Lesson: Area of a Regular Polygon & Composite Figures
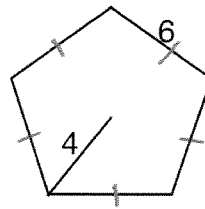
Vocabulary

Regular Polygon: _____

_____

Composite Figure: _____

_____

Practice

1.   Find the area of the given figure.

13m

15m
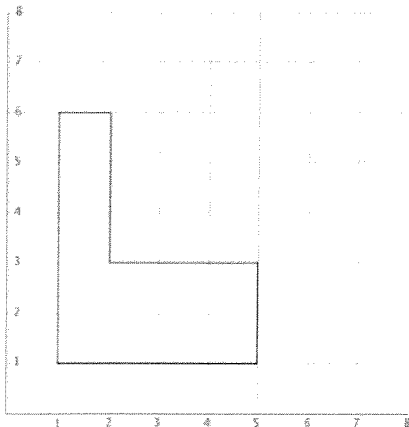
2.   Find the area of the given figure.

6

4

3.   Find the area of the given figure.

4.   Find the area of the given figure.

7 cm

16 cm