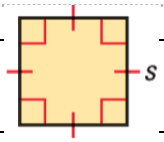
Geometry

11.1 Areas of Triangles and Parallelograms

Area of a Square

A =_____ Where _____ is the length of a _____.



Area Congruence Postulate

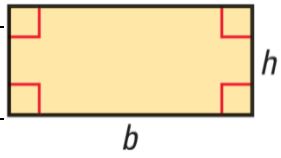
If 2 _____ are _____, then they have the same _____.

Area Addition Postulate

The total area is the _____ of the _____ of the _____ parts.

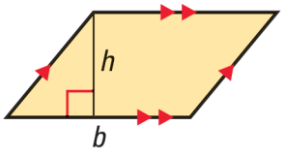
Area of a Rectangle

A = _____ Where ___ is the _____ and ___ is the _____



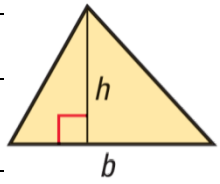
Area of a Parallelogram

A = _____ Where ___ is the _____ and ___ is the _____.

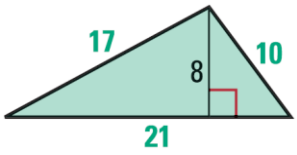


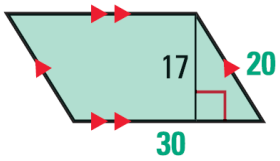
Area of a Triangle

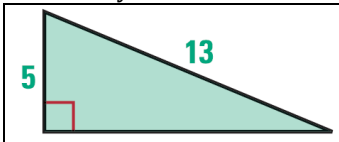
A = _____ Where ___ is the _____ and ___ is the _____.



Find the perimeter and area of the polygon.

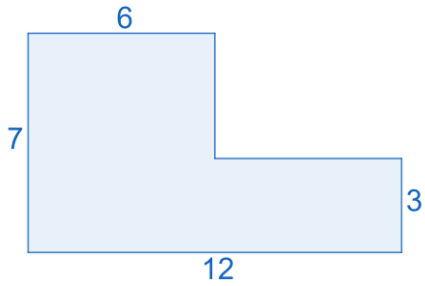






A parallelogram has an area of 153 in^2 and a height of 17 in. What is the length of the base?

Find the area.

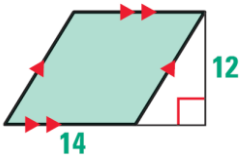


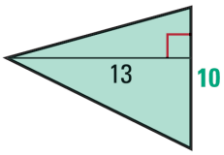
Assignment: Attached worksheet

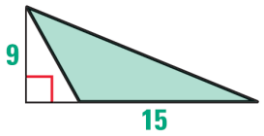
Geometry 11.1 Name: _____

Assignment:

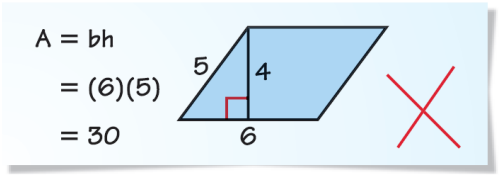
Find the area of the polygon.

1. 

2. 

3. 

Describe and correct the error in finding the area of the parallelogram.

4. 

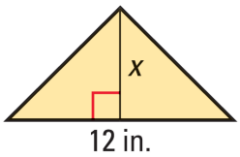
The lengths of the hypotenuse and one leg of a right triangle are given. Find the perimeter and area of the triangle.

5. Hypotenuse: 15 in.; leg: 12 in.

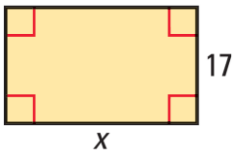
6. Hypotenuse: 85 m; leg: 84 m

Find the value of *x*.

7. $A = 36$ in.^{2}

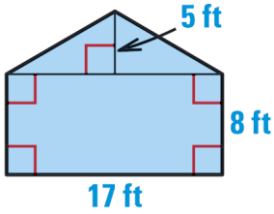


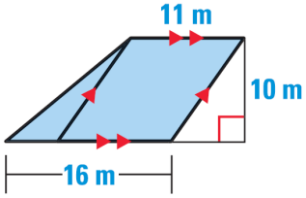
8. $A = 476$ cm^2

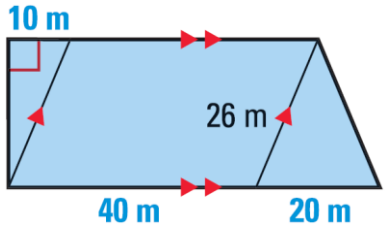


9. The area of a parallelogram is 507 square centimeters, and its height is three times its base. Find the base and the height.

Find the area of the shaded polygon.

10. 

11. 

12. 

13. In $\square ABCD$, base AD is 15 and AB is 8. What are the height and area of $\square ABCD$ if $m\angle DAB$ is 20°? If $m\angle DAB$ is 50°?

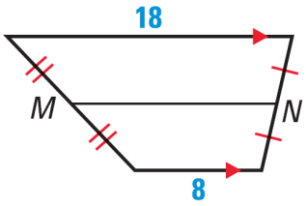
14. Find the area of a triangle with side lengths 5 feet, 5 feet, and 8 feet.

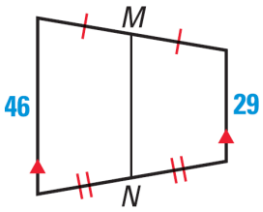
15. Sails A and B are right triangles. The lengths of the legs of Sail A are 65 feet and 35 feet. The lengths of the legs of Sail B are 29.5 feet and 10.5 feet. Find the area of each sail to the nearest square foot. About how many times as great is the area of Sail A as the area of Sail B?

16. You are making a tabletop in the shape of a parallelogram to replace an old 24 inch by 15 inch rectangular one. You want the areas of the tabletops to be equal. The base of the parallelogram is 20 inches. What should the height be

Mixed Review

Find the length of the midsegment of the trapezoid.

17. 

18. 

The coordinates of $\triangle PQR$ are $P(-4, 1)$, $Q(2, 5)$, and $R(1, -4)$. Graph the image of the triangle after the translation. Use prime notation.

19. $(x, y) \rightarrow (x + 3, y - 5)$

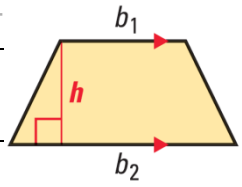
20. $(x, y) \rightarrow (x - 2, y + 3)$

Geometry

11.2 Areas of Trapezoids, Rhombuses, and Kites (11.3)

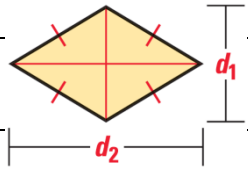
Area of a Trapezoid

A =_____ Where ___ is the _____ and ___ and ___ are the _____.



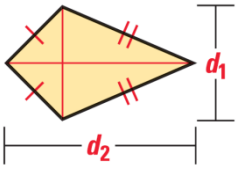
Area of a Rhombus

A =_____ Where ___ and ___ are the _____.

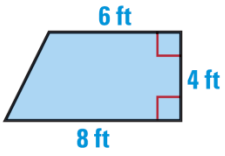


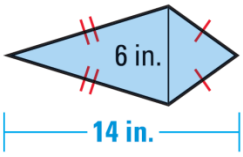
Area of a Kite

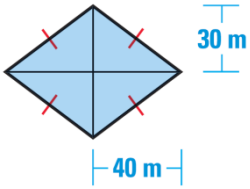
A =_____ Where ___ and ___ are the _____.



Find the area

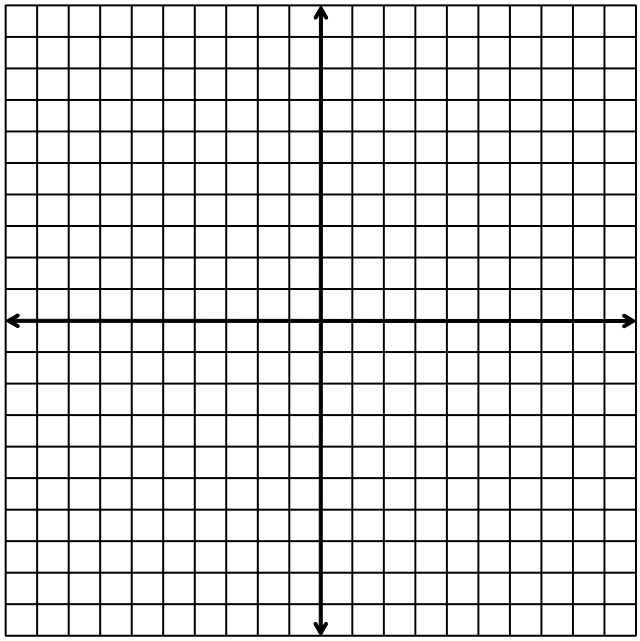






The area of a kite is 80 ft². One diagonal is 4 times as long as the other. Find the diagonal lengths.

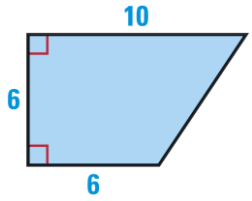
Find the area of a rhombus with vertices M(1, 3), N(5, 5), P(9, 3) and Q(5, 1).



Assignment: Attached worksheet

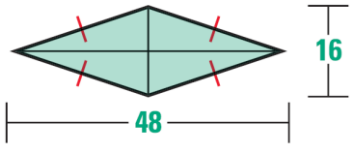
Assignment:

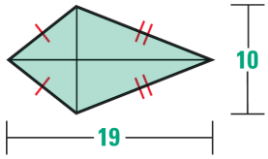
Find the area of the trapezoid.

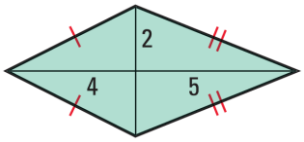
1. 

2. The lengths of the bases of a trapezoid are 5.4 centimeters and 10.2 centimeters. The height is 8 centimeters. Draw and label a trapezoid that matches this description. Then find its area.

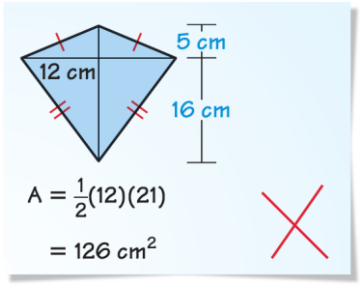
Find the area of the rhombus or kite.

3. 

4. 

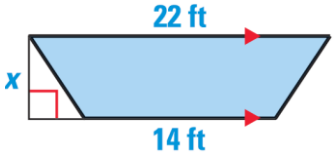
5. 

Describe and correct the error in finding the area.

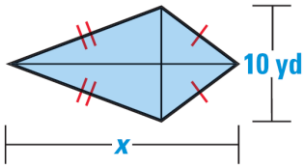
6. 

Use the given information to find the value of *x*.

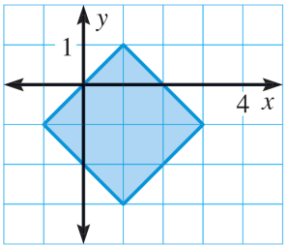
7. Area = 108 ft²



8. Area = 100 yd²



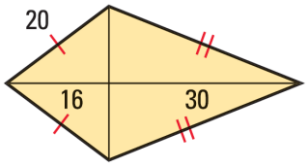
Find the area of the figure.

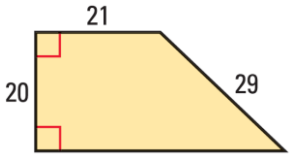
9. 

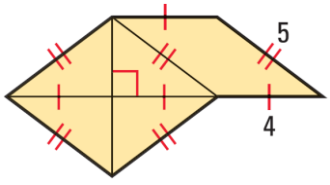
Find the lengths of the bases of the trapezoid described.

10. The height is 3 feet. One base is twice as long as the other base. The area is 13.5 square feet.

Find the area of shaded region.

11. 

12. 

13. 

14. How is the area of a trapezoid affected if you double the height but keep the lengths of the bases unchanged? If you keep the height unchanged but double the lengths of the bases? *Explain*.

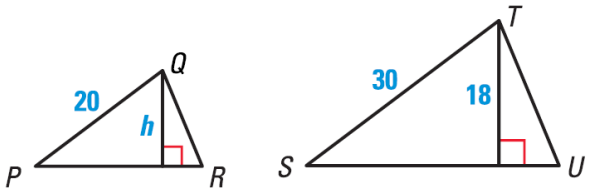
Sketch the figure. Then determine its perimeter and area.

15. The figure is a rhombus. Its side length is 13. The length of one of its diagonals 24.
16. The windshield in a truck is in the shape of a trapezoid. The lengths of the bases of the trapezoid are 70 inches and 79 inches. The height is 35 inches. Find the area of the glass in the windshield.
17. You are designing a wall hanging that is in the shape of a rhombus. The area of the wall hanging is 432 square inches and the length of one diagonal is 36 inches. Find the length of the other diagonal.

Mixed Review

Solve for the indicated variable. Write a reason for each step.

18. $d = rt$; solve for t
19. $P = 2\ell + 2w$; solve for w
20. In the diagram at the right, $\triangle PQR \sim \triangle STU$. The perimeter of $\triangle STU$ is 81 inches. Find the height h and the perimeter of $\triangle PQR$.



Geometry

11.3 Circumference and Arc Length (11.1)

Circumference of a Circle

- _____ around the _____
- Like _____

π

- Ratio of the _____ to the _____ of a circle
- Estimated in 2 Chronicles 4:2 and 1 Kings 7:23 as _____
- _____

Circumference of a Circle

$C =$ _____

$C =$_____

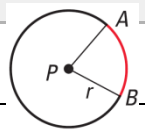
Find the circumference of a circle with diameter 5 inches.

Find the diameter of a circle with circumference 17 feet.

A car tire has a diameter of 28 inches. How many revolutions does the tire make while traveling 500 feet?

Geometry 11.3 Name: _____

Arc Length

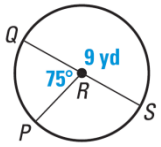


- Portion of the _____ that an _____ covers

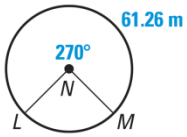
Arc Length

Arc Length =_____

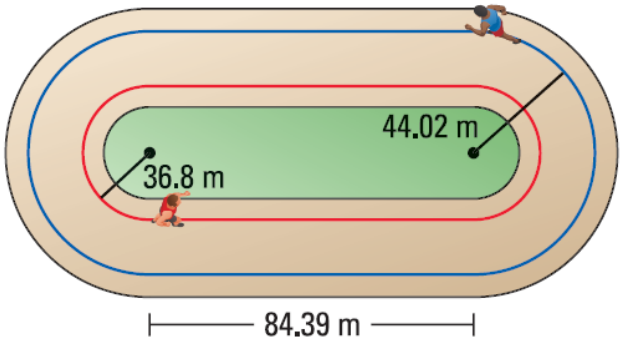
Find the length of $\overset{\frown}{PQ}$.



Find the Circumference of $\odot N$.



How far does the runner on the outside path travel in one lap. Round to the nearest tenth of a meter.



Assignment: 586 #2, 4, 5, 6, 7, 9, 10, 11, 12, 14, 15, 16, 22, 26, 29, 43, 45, 46, 47, 49 = 20 total

Geometry

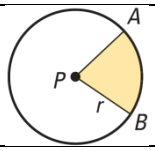
11.4 Areas of Circles and Sectors (11.2)

Area of a Circle

A =_____

Sector of a Circle

- _____ of a Circle



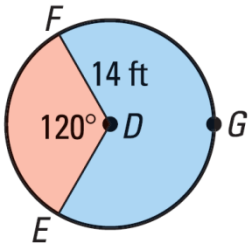
Area of a Sector

A =_____

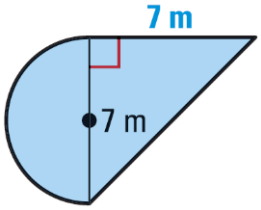
Find area of $\odot D$

Find area of small sector

Find area of big sector



Find the area of the figure.



Assignment: 593 #2, 4, 6, 8, 10, 11, 12, 13, 14, 15, 16, 18, 20, 21, 22, 28, 29, 33, 34, 35 = 20 total

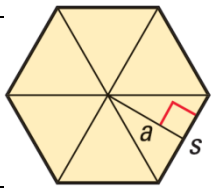
Geometry

11.5 Areas of Regular Polygons (11.3)

Apothem

- A segment drawn from the _____ of a regular polygon _____ to the _____ (also bisects edge)

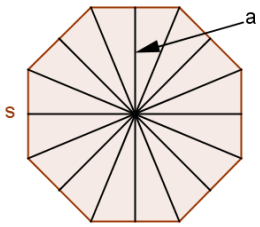
Area of a Regular Polygon



$A =$ _____

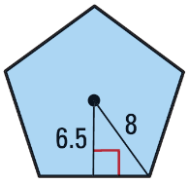
Where P is the _____ and a is the _____

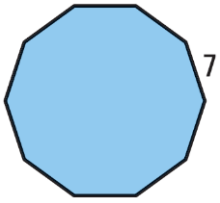
Typical steps to find area of regular polygon



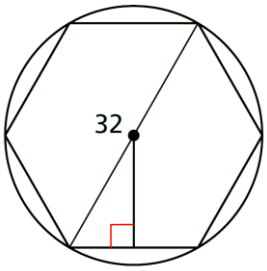
1. Find ½ of _____ angle
   $\frac{1}{2}\left(\frac{360}{n}\right)$
2. Use trigonometry to find _____
   tan, sin, cos
3. Find _____
   $P = ns$
4. $A = \frac{1}{2}Pa$

Find the area of the regular polygon.





A regular hexagon is inscribed in a circle with a diameter of 32 units. Find the area of the hexagon.



Assignment: 600 #6, 8, 10, 12, 13, 18, 20, 22, 24, 26, 27, 28, 53, 54, 57, 63 = 16 total

Geometry

11.6 Use Geometric Probability

Probability

$$Probability = \frac{Outcomes}{Outcomes}$$

Let's say you are listening to a radio contest where you hear a song and call in and name it. The song was supposed to be played between 12:00 and 1:00, but you can only listen from 12:20 to 1:00 because that is when you get out of class. What is the probability that you will hear the song?

Length Probability Postulate

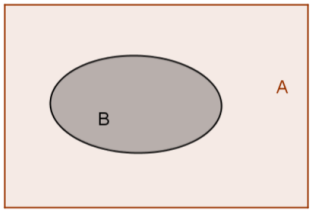
If a point on AB is chosen at _____ and C is between A and B, then the _____ that the point is on _____ is $\frac{Length\ of\ AC}{Length\ of\ AB}$.

$P(AC) = \frac{AC}{AB}$

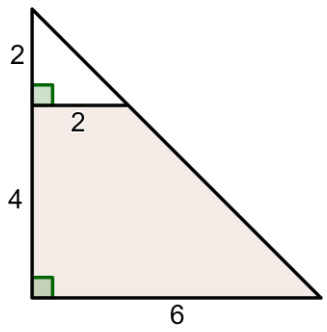
Area Probability Postulate

If a point in region A is chosen at _____, then the probability that the _____ is in region _____, which is in the _____ of region A, is $\frac{Area\ of\ region\ B}{Area\ of\ region\ A}$.

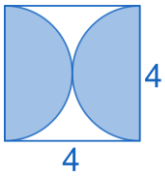
$P(B) = \frac{Area\ of\ B}{Area\ of\ A}$



Find the probability that a random point is in the shaded region.



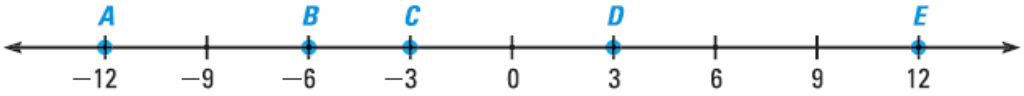
Find the probability that a random point is in the shaded region.



Assignment: Attached worksheet

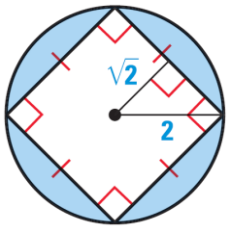
Assignment:

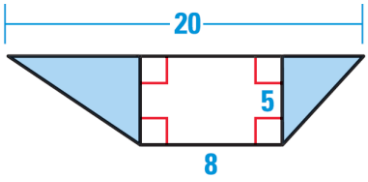
Find the probability that a point *K*, selected randomly on $\overline{AE}$, is on the given segment. Express your answer as a fraction, decimal, and percent.



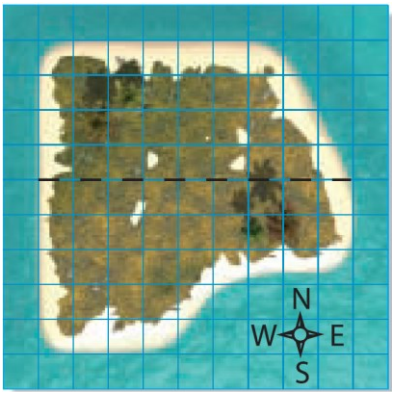
1. $\overline{BC}$
2. $\overline{AE}$

Find the probability that a randomly chosen point in the figure lies in the shaded region.

3. 

4. 

Use the scale drawing.

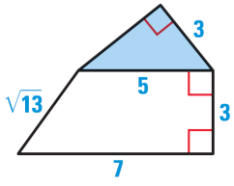


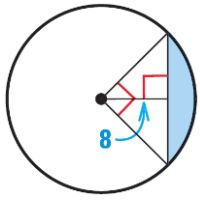
5. What is the approximate area of the north side of the island? The south side of the island? The whole island?
6. Find the probability that a randomly chosen location on the island lies on the south side.

Find the probability that a point chosen at random on the segment satisfies the inequality.

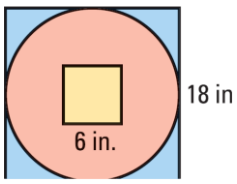
7. $x - 6 \leq 1$
8. $\frac{x}{2} \geq 7$

Find the probability that a randomly chosen point in the figure lies in the shaded region. *Explain* your steps.

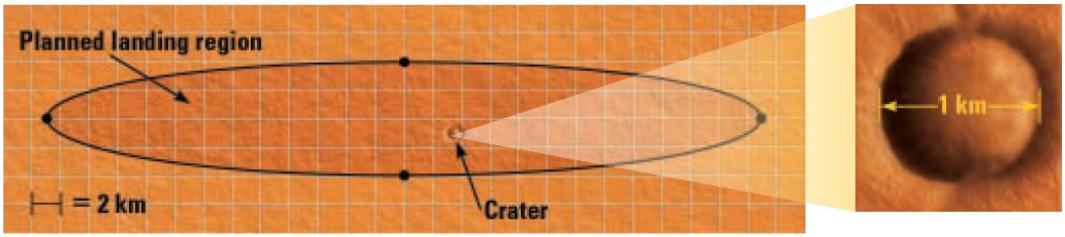
9. 

10. 

11. A sector of a circle intercepts an arc of 80°. Find the probability that a randomly chosen point on the circle lies on the arc. Find the probability that a randomly chosen point in the circle lies in the sector. *Explain* why the probabilities do not depend on the radius.
12. A dart is thrown and hits the target shown. If the dart is equally likely to hit any point on the target, what is the probability that it hits inside the inner square? That it hits outside the inner square but inside the circle?



13. Suppose that your school day is from 8:00 A.M. until 3:00 P.M. You eat lunch at 12:00 P.M. If there is a fire drill at a random time during the day, what is the probability that it begins before lunch?
14. Scientists lost contact with the space probe Beagle 2 when it was landing on Mars in 2003. They have been unable to locate it since. Early in the search, some scientists thought that it was possible, though unlikely, that Beagle had landed in a circular crater inside the planned landing region. The diameter of the crater is 1 km.



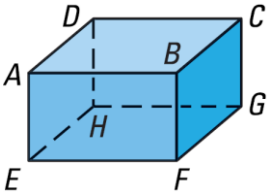
a. In the scale drawing, each square has side length 2 kilometers. Estimate the area of the planned landing region. *Explain* your steps.

b. Estimate the probability of Beagle 2 landing in the crater if it was equally likely to land anywhere in the planned landing region.

15. A 6 inch long rope is cut into two pieces at a random point. Find the probability both pieces are at least 1 inch long.

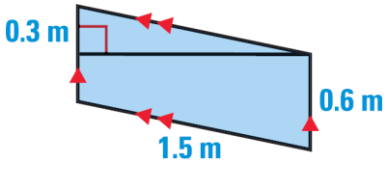
Mixed Review

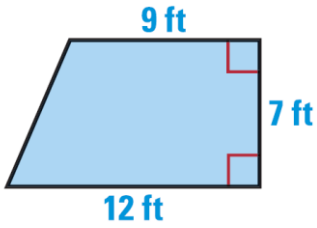
Think of each segment shown as part of a line.

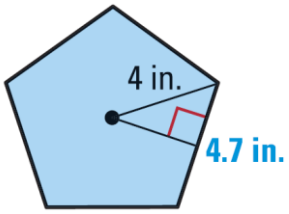


16. Name the intersection of plane *DCH* and plane *ADE*.
17. Name a plane that appears to be parallel to plane *ADH*.

Find the area of the polygon.

18. 

19. 

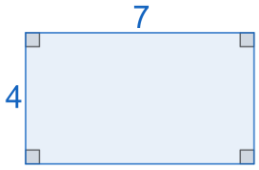
20. 

Name: _____

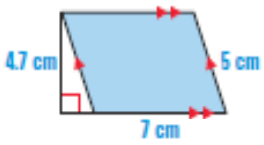
Geometry Chapter 11 Review

Find the area of the shaded polygon.

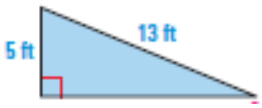
1.



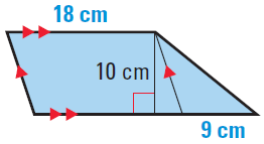
2.



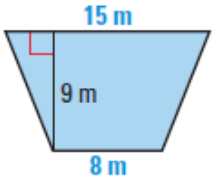
3.



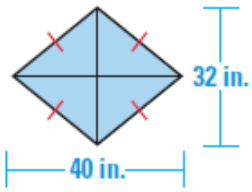
4.



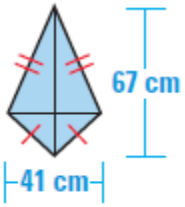
5.



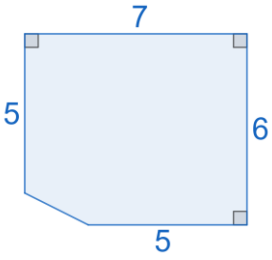
6.



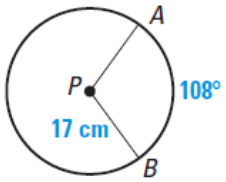
7.



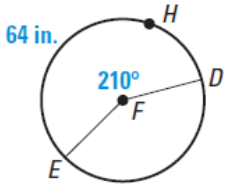
8.



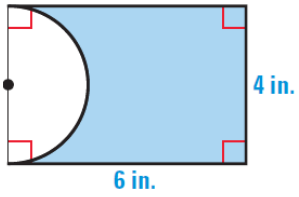
Find the indicated measure for the circle shown. Round to the nearest tenth if necessary.



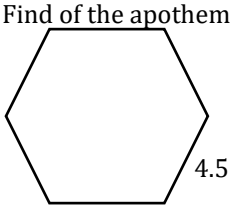
9. Circumference of $\odot P$
10. Length of $\overset{\frown}{AB}$
11. Area of $\odot P$
12. Area of sector APB
13. Find the radius



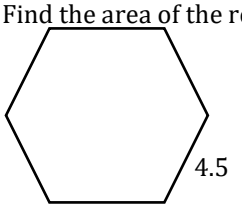
14. Find the area



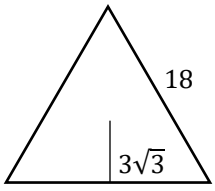
15. Find of the apothem of the regular polygon



16. Find the area of the regular polygon

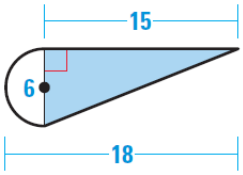


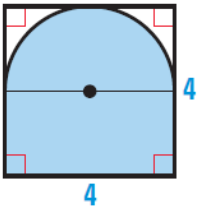
17. Find the area of the regular polygon

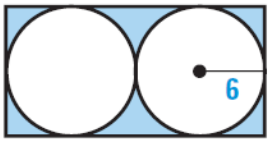


Find the probability that a randomly chosen point in the figure lies in the shaded region. Round to two decimal places.

Name: _____

18. 

19. 

20. 

Answers

1. 28 units^2
2. 32.9 cm^2
3. 30 ft^2
4. 225 cm^2
5. 103.5 m^2
6. 640 in.^{2}
7. 1373.5 cm^2
8. 41 units^2
9. 106.8 cm
10. 32.0 cm
11. 907.9 cm^2
12. 272.4 cm^2
13. 17.5 in.
14. 17.7 in^2
15. 3.9
16. 52.6
17. 140.3
18. 76.1 %
19. 89.3 %
20. 21.5 %