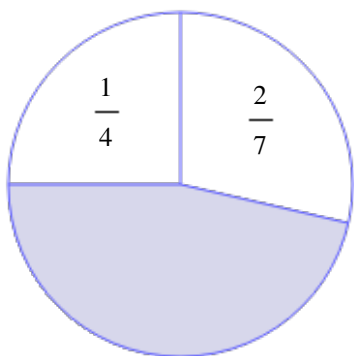


Instructor Name : **Mr. Trodick**

Instructor Note :

1. There were 80 runners to start a race. In the first half of the race,  $\frac{1}{4}$  of them dropped out. In the second half of the race,  $\frac{2}{5}$  of the remaining runners dropped out. How many runners finished the race?

2. How much of the circle is shaded? Write your answer as a fraction in simplest form.



3. In the past month, Mary rented 5 video games and 1 DVD. The rental price for each video game was \$2.90. The rental price for the DVD was \$4.20. What is the total amount that Mary spent on video game and DVD rentals in the past month?

4. Answer the following questions.

(a) 85% of what number is 68 ? \_\_\_\_\_

(b) 65% of 60 is what? \_\_\_\_\_

5. Answer the following questions.

(a) 27 is what percent of 18.75? \_\_\_\_\_

(b) 21.12 is 25.6% of what number? \_\_\_\_\_

6. Rachel ran for president of the chess club, and she received 51 votes. There were 60 members in the club. What percentage of the club members voted for Rachel?

7. An item costs \$340 before tax, and the sales tax is \$13.60.

Find the sales tax rate. Write your answer as a percentage.

8. An item is regularly priced at \$20. Ravi bought it on sale for 20% off the regular price. How much did Ravi pay?

9. A camera has a listed price of \$782.95 before tax. If the sales tax rate is 8.75%, find the total cost of the camera with sales tax included.

Round your answer to the nearest cent, as necessary.

10. A suit is on sale for \$279, which is 38% less than the regular price.

What is the regular price?

11. The price of an item yesterday was \$180. Today, the price rose to \$261. Find the percentage increase.

12. Donna has two coupons for shoes.

Coupon A: 15% off of \$41 shoes

Coupon B: \$10 rebate on \$41 shoes

Choose the coupon that gives the lower price. Then fill in the blank with the correct value.

Coupon A gives the lower price.

The price with coupon A is \$ \_\_\_\_\_ less than the price with coupon B.

Coupon B gives the lower price.

The price with coupon B is \$ \_\_\_\_\_ less than the price with coupon A.

13. In each figure below, the segments on the sides can be moved.  
Create the following triangles, if possible.

**First figure:** A triangle with side lengths of 3, 3, and 7.

**Second figure:** A triangle with side lengths of 5, 7, and 8.

If there is no triangle possible with the given side lengths, click on "No triangle possible".

14. In each figure below, the segments on the sides can be moved.  
Create the following triangles, if possible.

**First figure:** A triangle with side lengths of 2, 3, and 6.

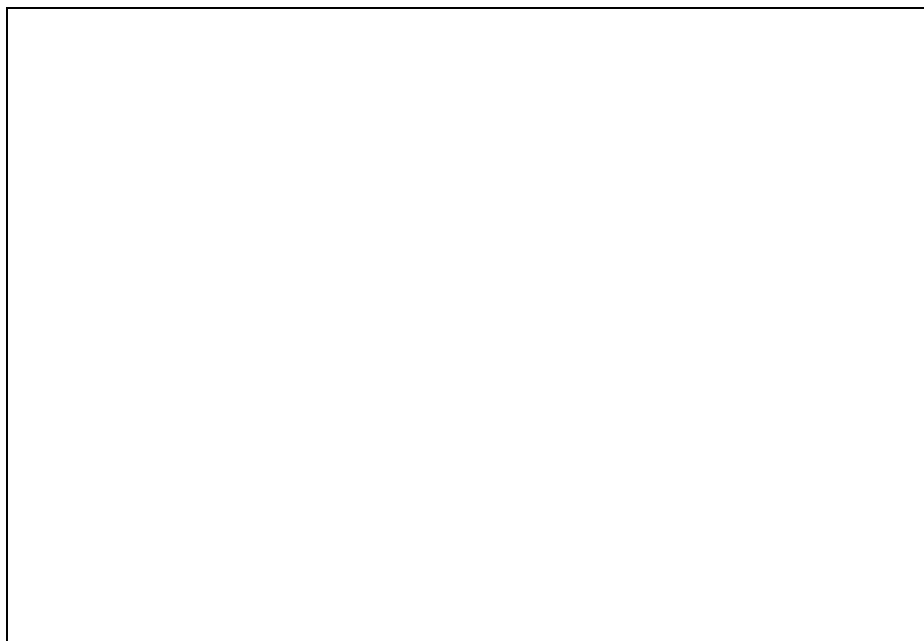
**Second figure:** A triangle with side lengths of 3, 6, and 8.

If there is no triangle possible with the given side lengths, click on "No triangle possible".

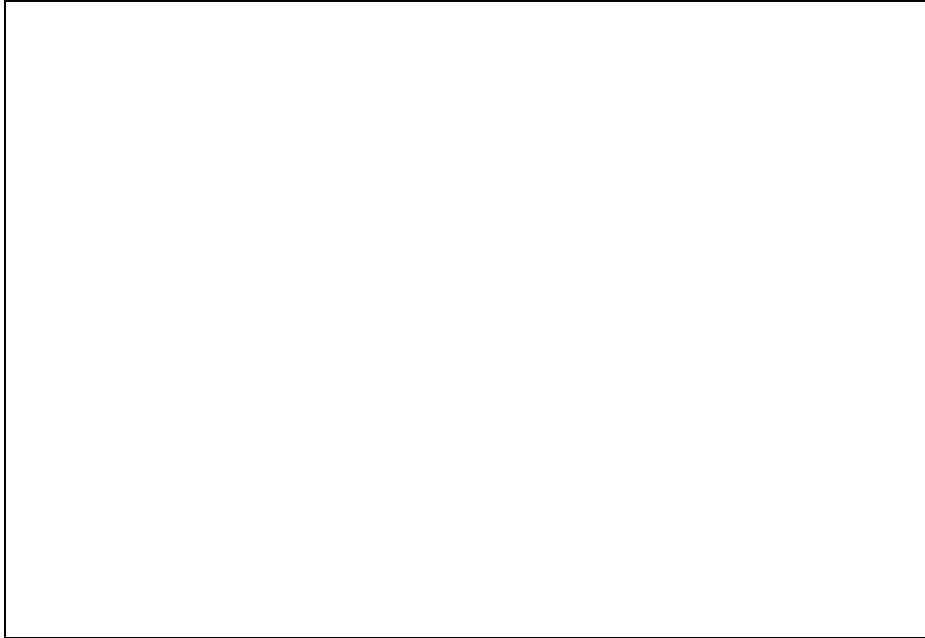
15. For each set of three measures, determine if they can be angle measures of a triangle.

Angles	Can be angle measures of a triangle	Cannot be angle measures of a triangle
$21^\circ, 57^\circ, 102^\circ$	<input type="radio"/>	<input type="radio"/>
$84^\circ, 49^\circ, 47^\circ$	<input type="radio"/>	<input type="radio"/>
$25^\circ, 55^\circ, 65^\circ$	<input type="radio"/>	<input type="radio"/>
$50^\circ, 50^\circ, 80^\circ$	<input type="radio"/>	<input type="radio"/>

16. Use a protractor and ruler to construct a triangle with angle measures of  $40^\circ$ ,  $50^\circ$ , and  $90^\circ$ , if possible.



17. Use a protractor and ruler to construct a triangle with a  $150^\circ$  angle between sides of lengths 4 and 6, if possible.



18. Use a compass and ruler to construct a triangle with side lengths of 4, 7, and 9, if possible.

19. Solve for  $u$ .

$$3 + 4u = -5$$

Simplify your answer as much as possible.

20. Solve for  $w$ .

$$253 = 118 - w$$

21. Solve for  $v$ .

$$54 = 2v + 14$$

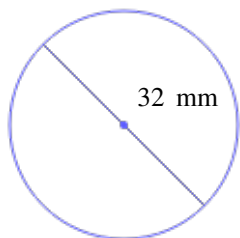
Simplify your answer as much as possible.

22. The circumference of a circular painting is 9.42 feet. What is the diameter of the painting? Use 3.14 for  $\pi$  and do not round your answer.

23.

The diameter of a circle measures 32 mm. What is the circumference of the circle?

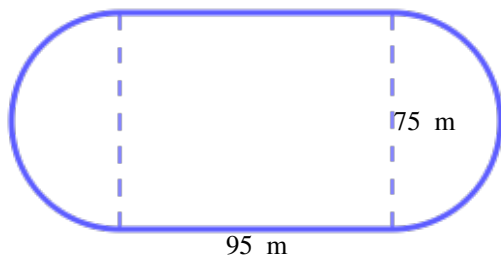
Use 3.14 for  $\pi$ , and do not round your answer. Be sure to include the correct unit in your answer.



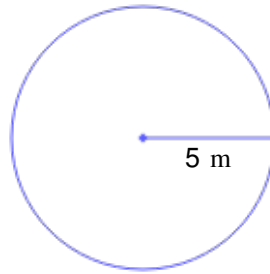
24. A street that is 140 m long is covered in snow. City workers are using a snowplow to clear the street. A tire on the snowplow has to turn 28 times in traveling the length of the street. What is the diameter of the tire?

Use the value 3.14 for  $\pi$ . Round your answer to the nearest tenth. Do not round any intermediate steps.

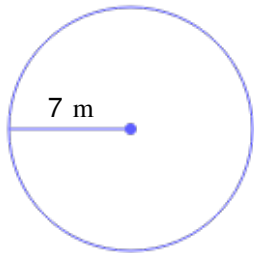
25. A training field is formed by joining a rectangle and two semicircles, as shown below. The rectangle is 95 m long and 75 m wide. What is the length of a training track running around the field? (Use the value 3.14 for  $\pi$ , and do not round your answer. Be sure to include the correct unit in your answer.)



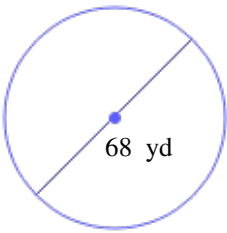
**26.** Find the area of a circle with radius 5 m.  
Use the value 3.14 for  $\pi$ , and do not round your answer.  
Be sure to include the correct unit in your answer.



**27.** Find the circumference and the area of a circle with radius 7 m.  
Use the value 3.14 for  $\pi$ , and do not round your answers. Be sure to include the correct units in your answers.



28. The figure below shows a circular park.  
Its diameter is 68 yd.



- (a) Use the calculator to find the circumference and area of the park.  
Use 3.14 for  $\pi$  in your calculations, and do not round your answers.  
Make sure to include the correct units.

Circumference:

Area:

- (b) A rope will be placed around the park.  
Which measure would be used in finding the amount of rope needed?

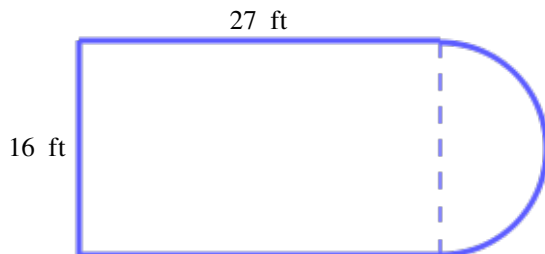
- Circumference
- Area

- (c) The park will be covered by artificial turf.  
Which measure would be used in finding the amount of turf needed?

- Circumference
- Area

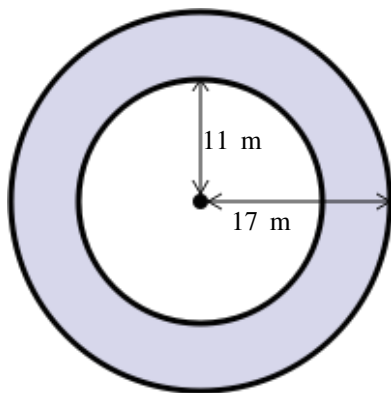
29. A rose garden is formed by joining a rectangle and a semicircle, as shown below. The rectangle is 27 ft long and 16 ft wide.

Find the area of the garden. Use the value 3.14 for  $\pi$ , and do not round your answer. Be sure to include the correct unit in your answer.



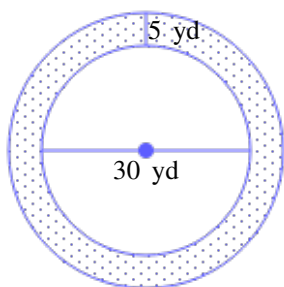


30. A ring-shaped region is shown below.  
 Its inner radius is 11 m, and its outer radius is 17 m.



Find the area of the shaded region.  
 Use 3.14 for  $\pi$ . Do not round your answer.

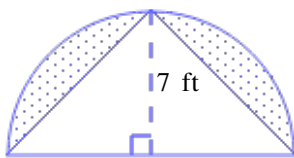
31. A flower garden is shaped like a circle. Its diameter is 30 yd. A ring-shaped path goes around the garden.  
 The width of the path is 5 yd.



The gardener is going to cover the path with sand. If one bag of sand can cover  $8 \text{ yd}^2$ , how many bags of sand does the gardener need? Note that sand comes only by the bag, so the number of bags must be a whole number. (Use the value 3.14 for  $\pi$ .)

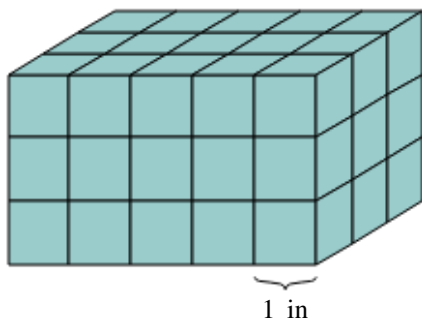
32. A triangle is placed in a semicircle with a radius of 7 ft, as shown below. Find the area of the shaded region.

Use the value 3.14 for  $\pi$ , and do not round your answer. Be sure to include the correct unit in your answer.

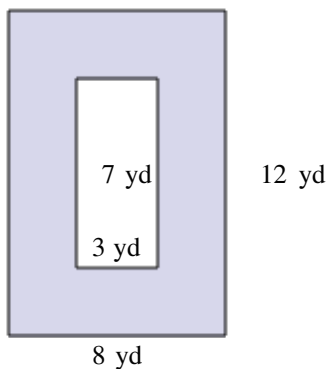


33. Use a compass and ruler to draw a circle with center  $A$  and a diameter of 4 units.

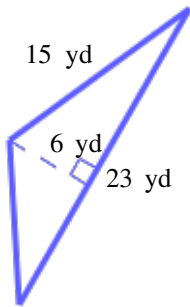
34. The solid below is made from cubes.  
Find its volume.



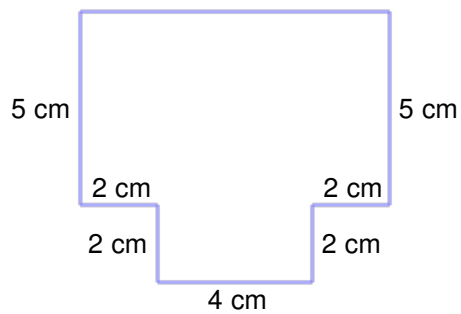
35. A rectangular region is removed from another rectangular region to create the shaded region shown below.  
Find the area of the shaded region.



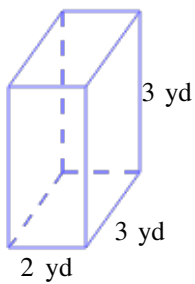
36. Find the area of the triangle below.  
Be sure to include the correct unit in your answer.



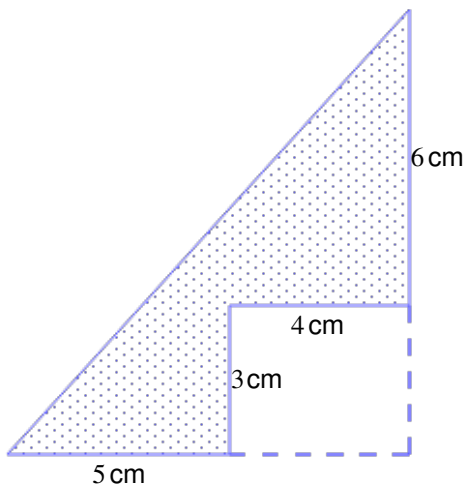
37. Find the area of the figure. (Sides meet at right angles.)



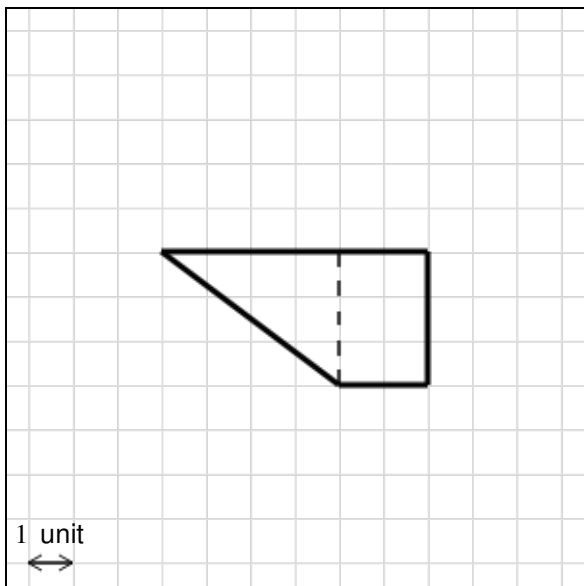
38. Find the volume of the rectangular prism.



39. A rectangle is removed from a right triangle to create the shaded region shown below. Find the area of the shaded region. Be sure to include the correct unit in your answer.



40. Find the area of the figure below by first finding the areas of the rectangle and triangle.

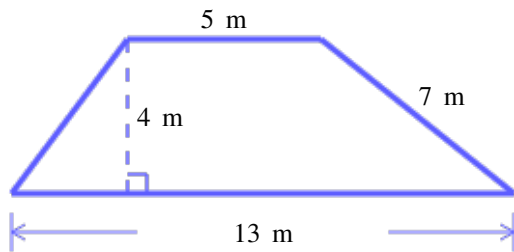


Area of the rectangle: \_\_\_\_\_ square units

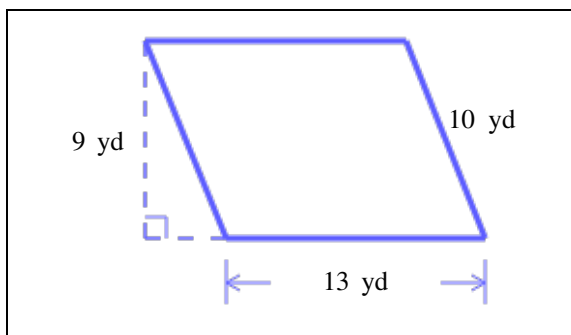
Area of the triangle: \_\_\_\_\_ square units

Area of the figure: \_\_\_\_\_ square units

41. Find the area of this trapezoid. Be sure to include the correct unit in your answer.

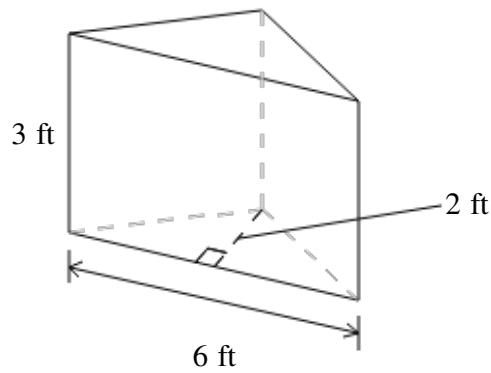


42. Find the area of this parallelogram. Be sure to include the correct unit in your answer.

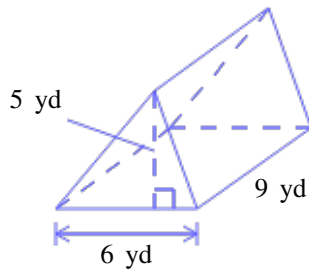


43. A company makes concrete bricks shaped like rectangular prisms. Each brick is 10 inches long, 6 inches wide, and 4 inches tall. If they used  $13,200 \text{ in}^3$  of concrete, how many bricks did they make?

44. A factory makes aquariums. Each aquarium is in the shape of a triangular prism, as shown below. If the factory made aquariums that require a total of  $3240 \text{ ft}^3$  of water, how many aquariums did the factory make?



45. Find the volume of this triangular prism.  
Be sure to include the correct unit in your answer.



46. The empty gas tank of a motor boat is to be filled. The tank is shaped like a rectangular prism with length 20 cm, width 16 cm, and height 14 cm. Suppose gas is pumped into the tank at a rate of  $640 \text{ cm}^3$  per minute. How many minutes does it take to fill the empty tank?

## Semester 2 Exam (Practice) #1 Answers for class (T) PERIOD 4 - MATH 7

1. 36 runners

2.  $\frac{13}{28}$

3. \$18.70

4.

(a) 85% of what number is 68 ? 80

(b) 65% of 60 is what? 39

5.

(a) 27 is what percent of 18.75? 144%

(b) 21.12 is 25.6% of what number? 82.5

6. 85%

7. 4%

8. \$16

9. \$851.46

10. \$450

11. 45 %

12.

Coupon A gives the lower price.

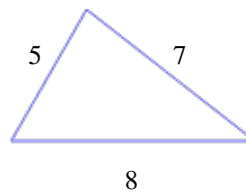
The price with coupon A is \$  less than the price with coupon B.

Coupon B gives the lower price.

The price with coupon B is \$3.85 less than the price with coupon A.

13.

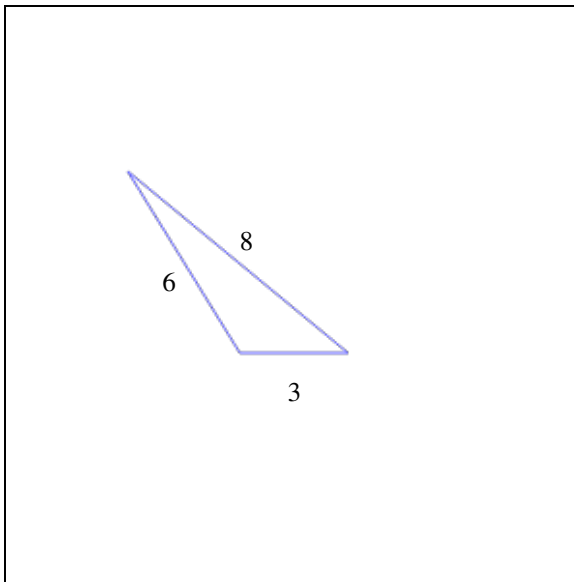
No triangle possible





14.

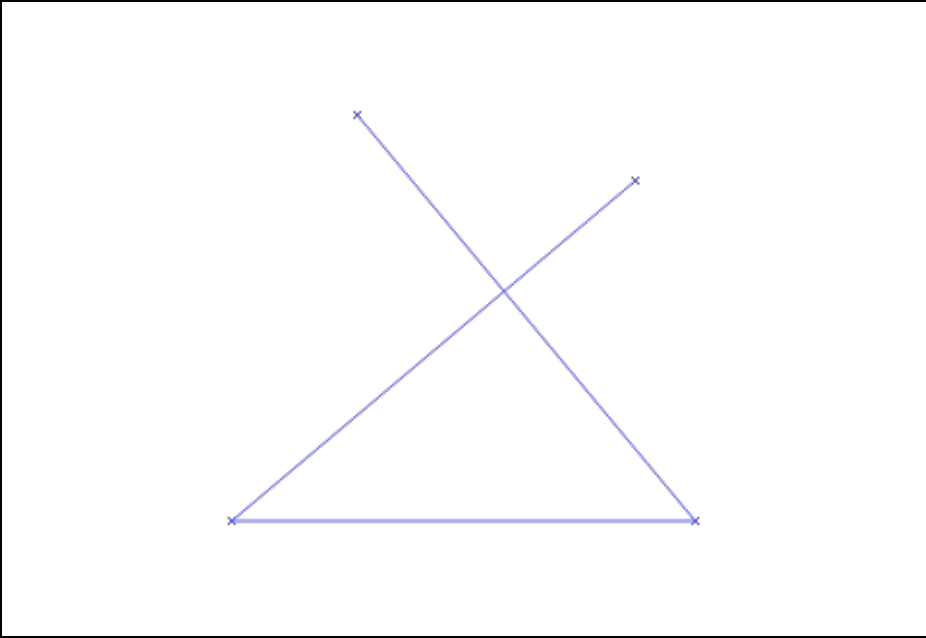
No  
triangle possible



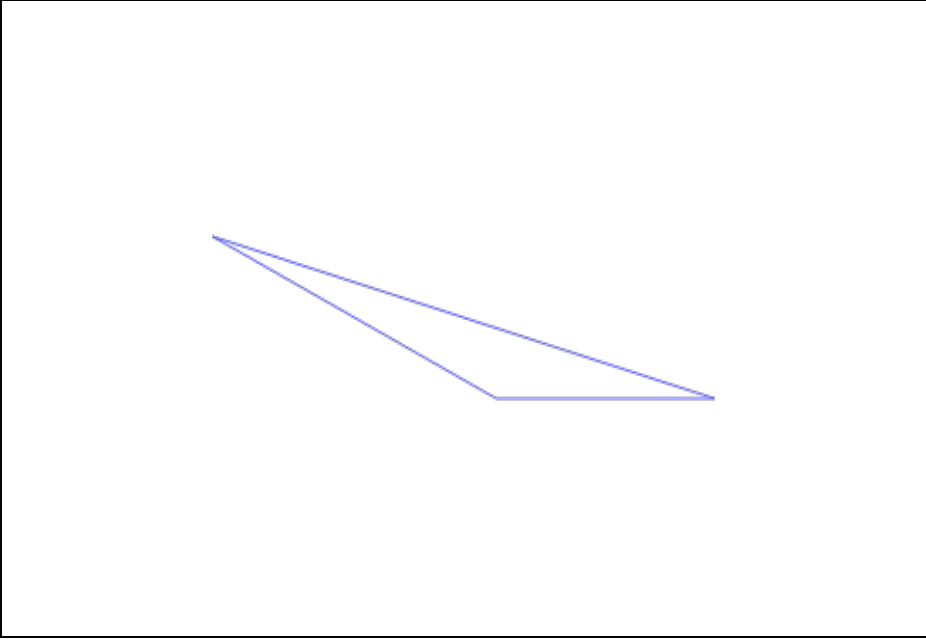
15.

Angles	Can be angle measures of a triangle	Cannot be angle measures of a triangle
$21^\circ, 57^\circ, 102^\circ$	<input checked="" type="radio"/>	<input type="radio"/>
$84^\circ, 49^\circ, 47^\circ$	<input checked="" type="radio"/>	<input type="radio"/>
$25^\circ, 55^\circ, 65^\circ$	<input type="radio"/>	<input checked="" type="radio"/>
$50^\circ, 50^\circ, 80^\circ$	<input checked="" type="radio"/>	<input type="radio"/>

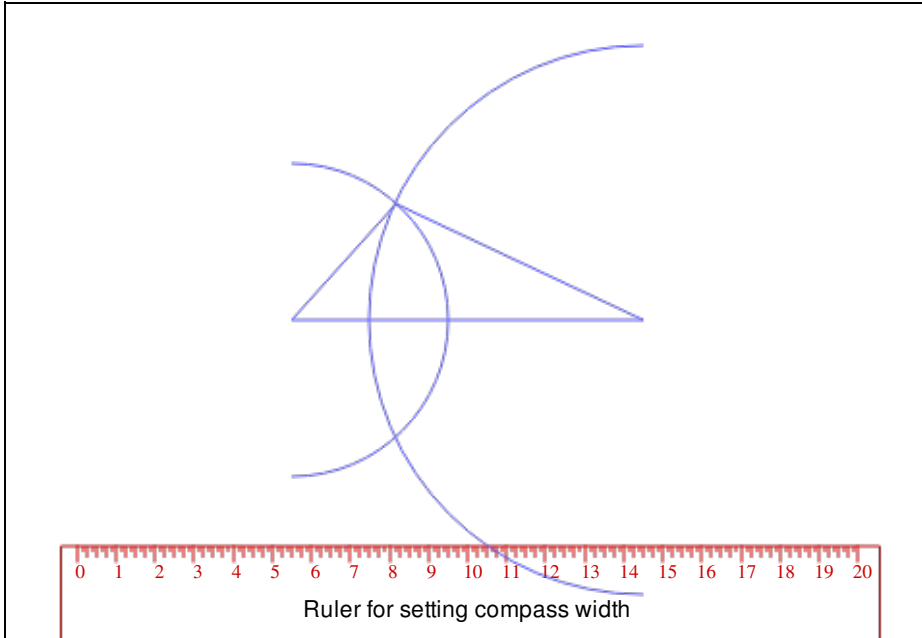
16.



17.



18.



19.  $u = -2$

20.  $w = -135$

21.  $v = 20$

22. 3 feet

23. 100.48 mm

24. 1.6 m

25. 425.5 m

26.  $78.5 \text{ m}^2$

**27.**

Circumference: 43.96 m

Area: 153.86 m<sup>2</sup>

**28.**

- (a) Use the calculator to find the circumference and area of the park.  
Use 3.14 for  $\pi$  in your calculations, and do not round your answers.  
Make sure to include the correct units.

Circumference: 213.52 yd

Area: 3629.84 yd

- (b) A rope will be placed around the park.  
Which measure would be used in finding the amount of rope needed?

- Circumference

- (c) The park will be covered by artificial turf.  
Which measure would be used in finding the amount of turf needed?

- Area

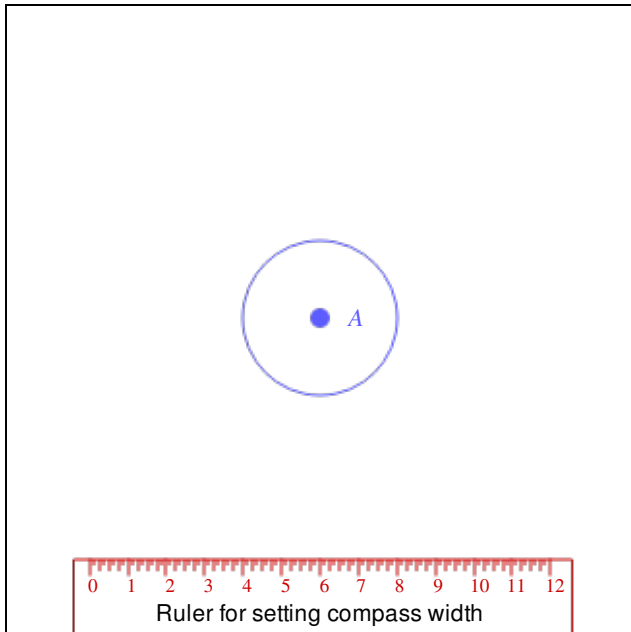
**29.** 532.48 ft<sup>2</sup>

**30.** 527.52 m<sup>2</sup>

**31.** 69 bags of sand

**32.** 27.93 ft<sup>2</sup>

33.



34.  $45 \text{ in}^3$

35.  $75 \text{ yd}^2$

36. Area:  $69 \text{ yd}^2$

37.  $48 \text{ cm}^2$

38.  $18 \text{ yd}^3$

39.  $28.5 \text{ cm}^2$

40.

Area of the rectangle: 6 square units

Area of the triangle: 6 square units

Area of the figure: 12 square units

41.  $36 \text{ m}^2$

42.  $117 \text{ yd}^2$

43. 55 bricks

44. 180 aquariums

45.  $135 \text{ yd}^3$

46. 7 minutes