

MCAS Archive Questions

10.M.1

2008, Mathematics - Grade 10

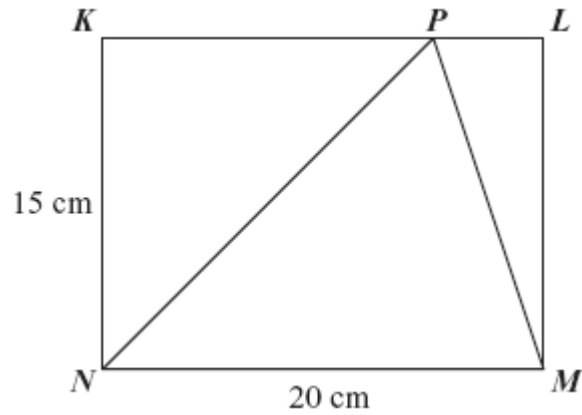
Question 16: Short-Answer

Reporting Category: Measurement

Standard: 10.M.1



Rectangle $KLMN$ and its dimensions are shown below. Point P lies on KL .

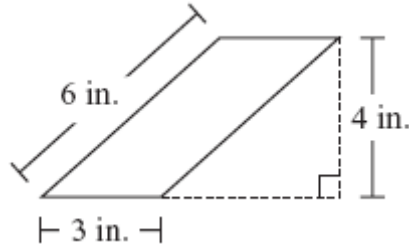


What is the area, in square centimeters, of $\triangle NPM$?

2008, Mathematics - Grade 10
Question 22: Multiple-Choice
Reporting Category: Measurement
Standard: 10.M.1



A parallelogram and its dimensions are shown below.



What is the area of the parallelogram?

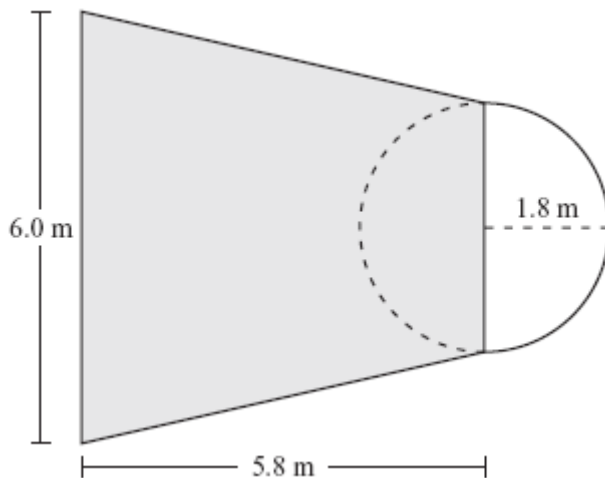
- A. 12 sq. in.
- B. 13 sq. in.
- C. 18 sq. in.
- D. 24 sq. in.

2008, Mathematics - Grade 10
Question 27: Multiple-Choice
Reporting Category: Measurement
Standard: 10.M.1



An international basketball court has a region called the free-throw lane, shown as the shaded part in the diagram below.

- The free-throw lane is shaped like an isosceles trapezoid.
- A semicircle, shown as the unshaded part in the diagram, is attached to the shorter base of the trapezoid.
- The radius of the semicircle is 1.8 meters.



Based on the dimensions in the diagram, what is the area of the shaded free-throw lane?

- A. 22.62 square meters
- B. 27.84 square meters
- C. 34.80 square meters
- D. 55.68 square meters

2008, Mathematics - Grade 10
Question 30: Multiple-Choice
Reporting Category: Measurement
Standard: 10.M.1



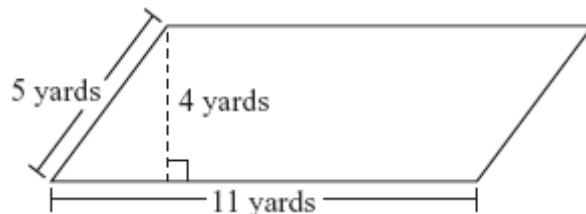
The circumference of Sophie's circular flower garden is 75 feet. Which of the following is closest to the **diameter** of her flower garden?

- A. 24 feet
- B. 12 feet
- C. 10 feet
- D. 5 feet

2007, Mathematics - Grade 10
Question 18: Short-Answer
Reporting Category: Measurement
Standard: 10.M.1



Hannah's garden is in the shape of a parallelogram. A diagram representing her garden is shown below.



Hannah needs to know the area of the garden in order to buy the correct amount of fertilizer. Based on the dimensions in the diagram, what is the area, in square yards, of Hannah's garden?

2007, Mathematics - Grade 10
Question 22: Multiple-Choice
Reporting Category: Measurement
Standard: 10.M.1



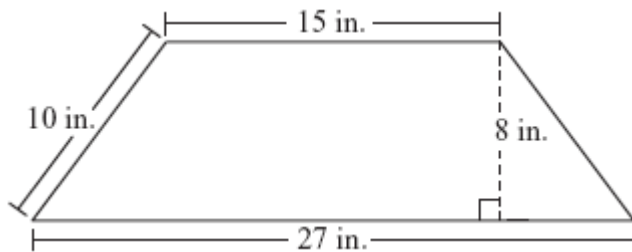
Which of the following is closest to the circumference, in inches, of a circle that has a diameter of 12 inches?

- A. 18.84
- B. 37.68
- C. 75.36
- D. 113.04

2007, Mathematics - Grade 10
Question 24: Multiple-Choice
Reporting Category: Measurement
Standard: 10.M.1



A trapezoid and its dimensions are shown below.



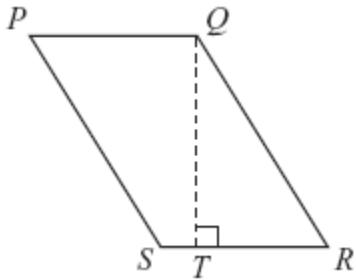
What is the area of the trapezoid?

- A. 60 sq. in.
- B. 168 sq. in.
- C. 210 sq. in.
- D. 336 sq. in.

2007, Mathematics - Grade 10
Question 38: Multiple-Choice
Reporting Category: Measurement
Standard: 10.M.1



Parallelogram $PQRS$ is shown below.



Some of the dimensions of the parallelogram are as follows:

- $QR = 7$ cm
- $RS = 5$ cm
- $QT = 6.5$ cm

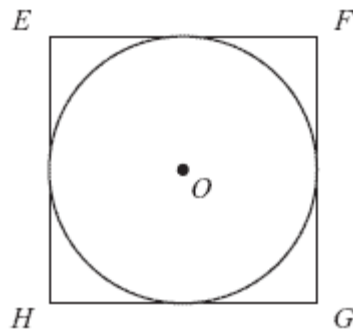
What is the area of the parallelogram?

- A. 24 cm^2
- B. 32.5 cm^2
- C. 35 cm^2
- D. 45.5 cm^2

2006, Mathematics - Grade 10
Question 37: Multiple-Choice
Reporting Category: Measurement
Standard: 10.M.1



Circle O is inscribed in square $EFGH$, as shown below.



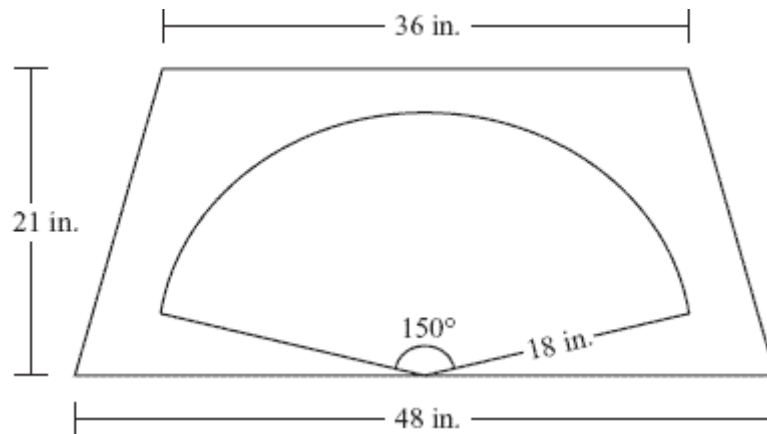
The circumference of circle O is 20 centimeters. Which of the following is closest to the perimeter of square $EFGH$?

- A. 24 cm
- B. 25.5 cm
- C. 27 cm
- D. 28.5 cm

2006, Mathematics - Grade 10
Question 41: Open-Response
Reporting Category: Measurement
Standard: 10.M.1



The rear window of Alex's van is shaped like a trapezoid with an upper base measuring 36 inches, a lower base measuring 48 inches, and a height of 21 inches. An 18-inch rear window wiper clears a 150° sector of a circle on the rear window, as shown in the diagram below.

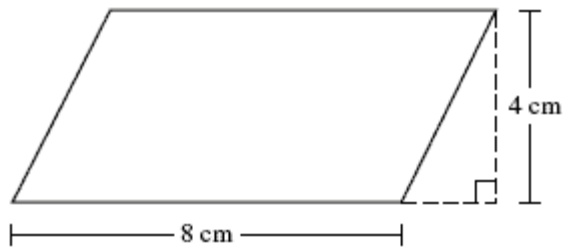


- What is the area, in square inches, of the entire trapezoidal rear window? Show or explain how you got your answer.
- What fractional part of a complete circle is cleared on the rear window by the 18-inch wiper? Show or explain how you got your answer.
- What is the area, in square inches, of the part of the rear window that is cleared by the wiper? Show or explain how you got your answer.
- What percent of the area of the entire rear window is cleared by the wiper? Show or explain how you got your answer.

2005, Mathematics - Grade 10
Question 9: Multiple-Choice
Reporting Category: Measurement
Standard: 10.M.1



What is the area of the parallelogram represented below?

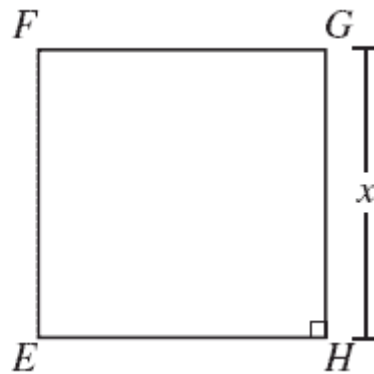
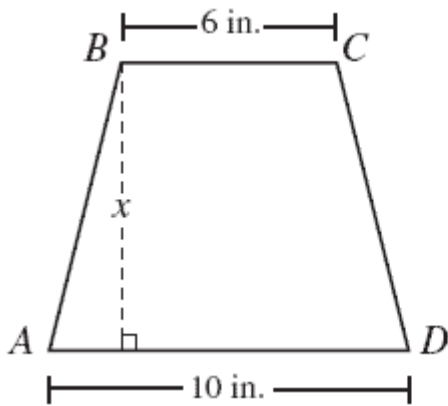


- A. 32 cm^2
- B. 24 cm^2
- C. 16 cm^2
- D. 12 cm^2

2005, Mathematics - Grade 10
Question 15: Short-Answer
Reporting Category: Measurement
Standard: 10.M.1



Trapezoid $ABCD$ shown below has bases measuring 6 inches and 10 inches and a height of x inches. Square $EFGH$ shown below has sides measuring x inches. The trapezoid and the square have equal areas.



What is the value of x , in inches?

2005, Mathematics - Grade 10
Question 21: Open-Response
Reporting Category: Measurement
Standard: 10.M.1



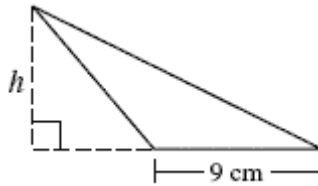
Carla can use 100 square feet of floor space in her school's gymnasium, in any way she chooses, to set up computer stations for a science fair. She has chosen to use floor space in the shape of a rectangle, with dimensions that are **whole numbers**.

- a. Draw all possible rectangles with an area of 100 square feet and whole-number dimensions. Your drawings do not have to be to scale, but you must label the dimensions on each drawing.
- b. Carla plans to buy a length of rope to surround her floor space. Which rectangle that you drew in part a. has the smallest perimeter and will thus require the least amount of rope? Show or explain how you got your answer.
- c. To set up her computer stations, Carla will subdivide her rectangular floor space into small rectangles that each measure 2 feet by 4 feet.
 - Using the rectangle you chose in part b. as Carla's floor space, what is the maximum number of these small rectangles that she can create?
 - To support your answer, sketch the rectangle from part b. subdivided into the maximum number of these small rectangles.
 - Explain how you know your answer is correct.

2005, Mathematics - Grade 10
Question 24: Multiple-Choice
Reporting Category: Measurement
Standard: 10.M.1



What is h , the height of the triangle represented below, if its area is 58.5 square centimeters?

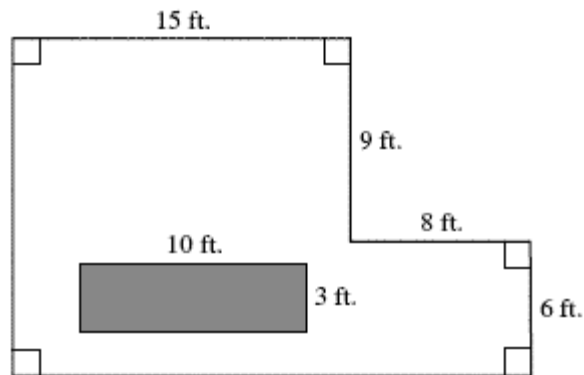


- A. 13 cm
- B. 18 cm
- C. 26 cm
- D. 39 cm

2005, Mathematics - Grade 10
Question 40: Multiple-Choice
Reporting Category: Measurement
Standard: 10.M.1



How many square feet of carpeting are needed to cover the floor of the room represented by the drawing below? Note that the shaded region is to be left uncovered to leave space for the construction of a built-in trophy case with a rectangular base.



- A. 125 sq. ft.
- B. 243 sq. ft.
- C. 273 sq. ft.
- D. 303 sq. ft.

2004, Mathematics - Grade 10
Question 5: Multiple-Choice
Reporting Category: Measurement
Standard: 10.M.1



The wheels on Bill's bicycle each have a radius of 35 centimeters. Which of the following is closest to the distance the bicycle moves along the ground in one complete revolution of the wheels?

- A. 35 cm
- B. 55 cm
- C. 110 cm
- D. 220 cm

2004, Mathematics - Grade 10
Question 16: Short-Answer
Reporting Category: Measurement
Standard: 10.M.1

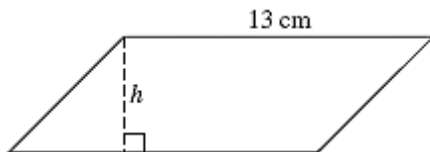


The length of the hypotenuse of a right triangle is 13 centimeters, and the length of one leg is 12 centimeters. What is the area of the triangle?

2004, Mathematics - Grade 10
Question 22: Multiple-Choice
Reporting Category: Measurement
Standard: 10.M.1



What is h , the height of the parallelogram represented below, if its area is 91 square centimeters?



- A. 7 cm
- B. 9 cm
- C. 11 cm
- D. 15 cm

2003, Mathematics - Grade 10
Question 1: Multiple-Choice
Reporting Category: Measurement
Standard: 10.M.1



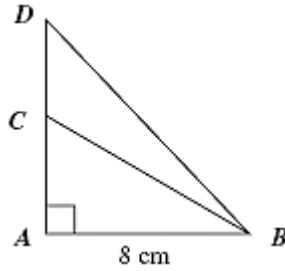
A landing pad for a helicopter is in the shape of a circle with a radius of 7 meters. Which of the following is closest to the area of the landing pad?

- A. 44 square meters
- B. 154 square meters
- C. 205 square meters
- D. 308 square meters

2003, Mathematics - Grade 10
 Question 18: Short-Answer
 Reporting Category: Measurement
 Standard: 10.M.1



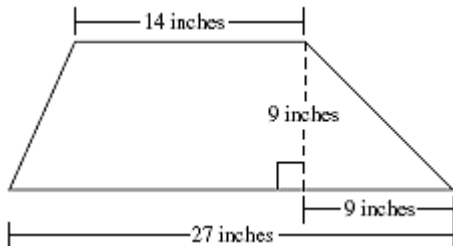
In the figure below, A , C , and D are collinear, the area of $\triangle ABC$ is 24 square centimeters, and the area of $\triangle ABD$ is 40 square centimeters. If the measure of \overline{AB} is 8 centimeters, what is the length of \overline{DC} ?



2003, Mathematics - Grade 10
 Question 34: Multiple-Choice
 Reporting Category: Measurement
 Standard: 10.M.1



The trapezoid pictured below has the measurements shown.



Which measure is closest to the perimeter of the trapezoid?

- A. 41 inches
- B. 59 inches
- C. 64 inches
- D. 66 inches