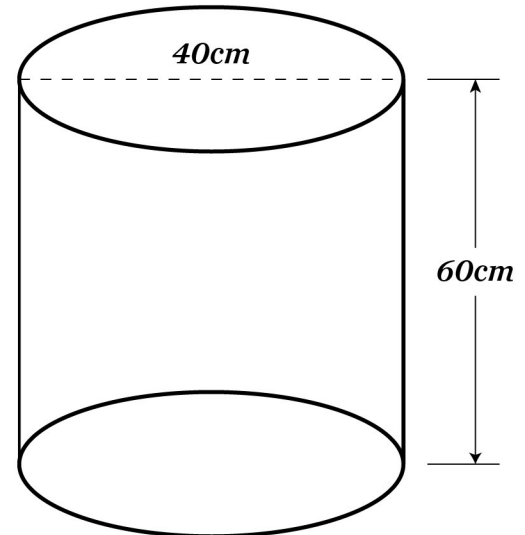**Directions:**

Choose the ***one best answer*** to each question.

Question 1

A painter mixes gallons of paint in a large cylindrical bucket so that there will be no difference in colour among individual gallons.

If one gallon of paint has a volume of approximately 8000 cm^3, what is the maximum number of whole gallons of paint that can be poured into the bucket?

    a) *3*   **b)** *7*   **c)** *9*   **d)** *11*   **e)** *37*

Answer: *c*

The Math formulas page will be helpful for this question. You must use the appropriate formula for the volume of a cylinder and recognize that its radius is half of the diameter shown. Once the volume is computed, that answer is divided by 8000. Since only whole gallons are to be poured into the bucket, the quotient is rounded **DOWN**. The concept of rounding up or down (as appropriate to a particular situation) to produce a whole-number answer is an important one for you to understand.

Volume of bucket: *(3.14) x (20)² x (60) = 75,360 cm³*
                               75,360 / 8000 = 9.42 gallons

Answer is rounded **DOWN** because 10 whole gallons would not fit.
Final answer: *9 gallons*

Question 2

A surveyor made the measurements shown in the diagram to the right.

What is the measure, in feet, of AB, the straight-line distance across the stream?

    a) *50*   **b)** *75*   **c)** *80*   **d)** *100*   **e)** *150*

Answer: d

You must recognize similar triangles in the diagram and set up the correct proportion, which could be expressed as:
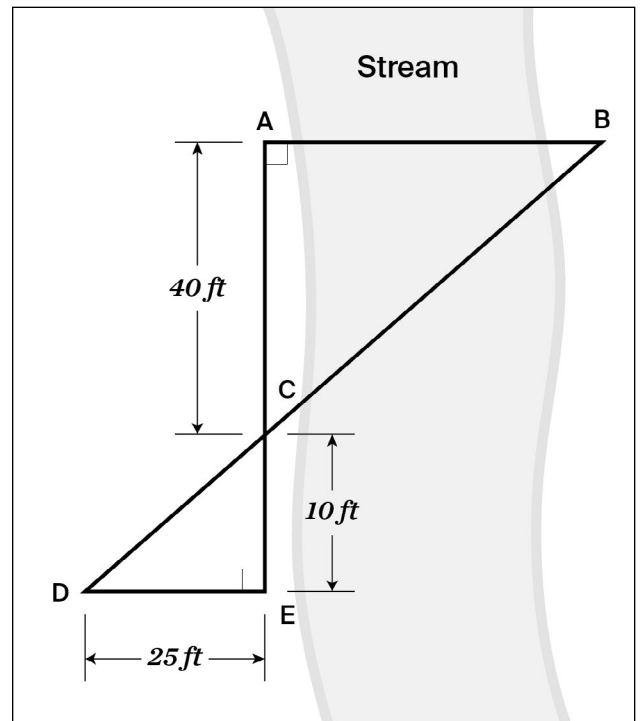
$$\frac{AC}{EC} = \frac{AB}{ED}$$

$$\frac{AC}{EC} = \frac{AB}{ED} \quad \text{becomes} \quad \frac{40}{10} = \frac{x}{25}$$

Letting AB be represented by x and substituting the other measures from the diagram, the proportion is then solved for the unknown measure.

    Cross-multiplying: *10x = 1000*
    Dividing by 10:   *x = 100*
    Answer: *100 feet*

Question 3

Last month, the balance in Tisha's checkbook was $1219.17. Since then she has deposited her latest paycheck of $2425.66 and written checks for $850.00 (rent), $235.89 (car payment), and $418.37 (credit card payment).

What is the current balance in Tisha's checking account?

  a) *$921.40*   **b)** *$2140.57* **c)** *$3215.27* **d)** *$3929.92* **e)** *$5149.09*

Answer: b

The paycheck would be added to the existing balance, and the checks written would be subtracted. The realistic amounts in the question would require considerable time for the arithmetic to be done by hand, but the values can be entered into the calculator in one continuous string as they are presented in the expression.

   New balance *= Old balance + Paycheck deposited - Checks written*
   New balance *= 1219.17 + 2425.66 - 850.00 - 235.89 - 418.37*
   New balance *= $2140.57*

Question 4

Byron purchased a $5000 certificate of deposit (CD) at his local bank. The CD will pay him 7% simple interest at the end of 2 years.

How much INTEREST, in dollars, will Byron have earned from his CD at the end of the 2-year period?

Mark your answer in the circles in the grid on your answer sheet.

Answer: *700*

The formula for simple interest is found on the formulas page in the front of the Mathematics Test.

simple interest = principal x *rate* x *time*
simple interest = $5000 x *0.07* x *2*
simple interest = $700

Alternate-format responses can be right-, left-, or center-justified, as shown in the examples below.

Question 5

Show the location of the point whose coordinates are (3, -4).

Mark your answer on the coordinate plane grid on your answer sheet.

Answer: *See coordinate plane grid.*
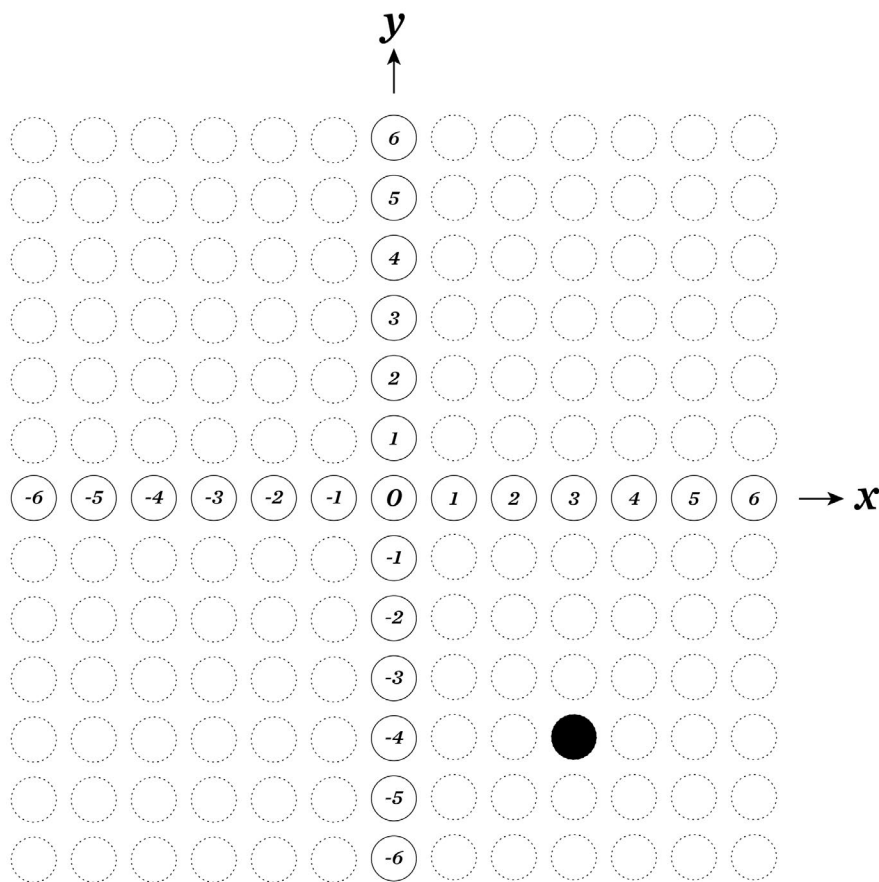
The coordinates in the ordered pair are listed with the x-coordinate (horizontal) first and the y-coordinate (vertical) second. The point (3, -4) is located in the lower-right, or fourth, quadrant of the graph.