

1. Express the repeating decimal  $0.\overline{2}$  as a fraction.

(A)  $\frac{1}{2}$   
(B)  $\frac{2}{10}$   
(C)  $\frac{1}{9}$   
(D)  $\frac{2}{9}$

2. Classify each number as rational or irrational.

$\pi$        $5.\overline{3}$        $\sqrt{36}$   
 $\sqrt{8}$        $-\frac{3}{7}$

Rational	Irrational

3. How would you classify the number 121?

(A) perfect square  
(B) perfect cube  
(C) both a perfect square and a perfect cube  
(D) neither a perfect square nor a perfect cube

4. Taj asked 27 classmates whether they know how to write calligraphy. He used a calculator to compare the number of classmates who said yes to the total number he surveyed. The calculator showed the result as 0.1111111111.

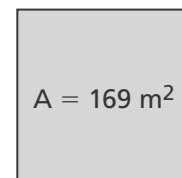
**Part A**

Write this number as a fraction.

**Part B**

How many students know how to write calligraphy?

5. What is the side length,  $s$ , of the square?



6. Solve the equation  $x^2 = 26$ .

(A)  $x = \pm \sqrt{26}$   
(B)  $x = \sqrt{26}$   
(C)  $x = \pm 13$   
(D)  $x = 13$

7. A cube-shaped box has a volume of 125 cubic inches. If the box is packed full of cubes with edge lengths of 1 inch, how many cubes can fit along one side of the box?

(A) 5 cubes  
(B) 10 cubes  
(C) 25 cubes  
(D) 125 cubes

8. Evaluate the expression for  $x = 1$  and  $y = 5$ .

$$16x^0 + 5x^2 \cdot y^{-1}$$

9. Fill in the blanks with the provided expressions to match each expression with its equivalent.

$$y^5 \quad y^8 \quad y^6 \quad y^{-3}$$

$$(y^3)^2: \underline{\hspace{2cm}}$$

$$\frac{1}{y^3} \underline{\hspace{2cm}}$$

$$y^8 \div y^3: \underline{\hspace{2cm}}$$

$$y^4 \cdot y^4: \underline{\hspace{2cm}}$$

10. Which expression is equivalent to

$$\frac{(8 \times 10^{-5}) + (6 \times 10^{-5})}{5.6 \times 10^3}?$$

(A)  $2.5 \times 10^{-7}$   
(B)  $2.5 \times 10^{-2}$   
(C)  $2.5 \times 10^8$   
(D)  $2.5 \times 10^{-8}$

11. Rewrite  $3^{-7}$  using a positive exponent.

12. A large oak tree has  $2 \times 10^5$  leaves during its lifespan. A large forest can have about  $5 \times 10^3$  oak trees. Approximately how many leaves grow on large oak trees in a forest during the lifespan of the trees?

13. Find  $(1.6 \times 10^7) + (3.8 \times 10^8)$ . Express your answer in scientific notation.