

---

Directions: Identify each number as rational or irrational.

1.  $4.101010001\dots$  \_\_\_\_\_

2.  $-0.33333\dots$  \_\_\_\_\_

3.  $4\pi$  \_\_\_\_\_

4.  $\frac{3}{4}$  \_\_\_\_\_

5.  $\sqrt{256}$  \_\_\_\_\_

6.  $\sqrt{216}$  \_\_\_\_\_

7.  $\sqrt{440}$  \_\_\_\_\_

8.  $(3\sqrt{5})^2$  \_\_\_\_\_

---

Directions: Are the following sums, differences, and products rational or irrational?

9.  $\sqrt{13} * \sqrt{13}$  \_\_\_\_\_

10.  $\sqrt{49} + \sqrt{25}$  \_\_\_\_\_

11.  $3\pi - \pi$  \_\_\_\_\_

12.  $\sqrt{50} * \sqrt{40}$  \_\_\_\_\_

13.  $\sqrt{\frac{14}{5}} * \sqrt{\frac{10}{7}}$  \_\_\_\_\_

13.  $5(3\pi - 6) - 15\pi$  \_\_\_\_\_

---

Directions: Circle the best answer for each multiple choice question below.

14. Which number can you add to any rational number to obtain an irrational number?

A) 3.453

B)  $\sqrt{16}$

C)  $79\frac{12}{17}$

D)  $\sqrt{8}$

15. Label the following statements as true or false.

A) The product of two rational numbers is always rational.

B) The sum of two irrational numbers is always irrational.

C) The product of two rational numbers is always irrational.

D) The product of two irrational numbers is never irrational.

E) The sum of two rational numbers is always irrational.

F) The sum of a rational and irrational number is rational.

G) The product of a nonzero rational number and an irrational number is always rational.

---

16) A rectangle with an area of  $10\sqrt{33}$  m<sup>2</sup>, has a side length of  $5\sqrt{22}$  m. What is the other side of this rectangle?

17) What is the perimeter from #16?

18) If a square has a perimeter of  $20\sqrt{3}$  units, what is the area of the square?

19) If a square has an area of 72 units<sup>2</sup>, what is the perimeter of the square?

20) Solve for x.  $3\sqrt{7} \cdot x + \sqrt{5} = 2\sqrt{5}$