



Algebra I Unit 1: Real Number and Quantities

1. Which of the following is an irrational number?

- (A) $3.\bar{7}$
- (B) $\sqrt{7}$
- (C) 0.456456...
- (D) 0.999

2. Which list only contains rational numbers?

- (A) $\frac{0}{10}, -\sqrt{25}, \sqrt{\frac{9}{4}}, 0.\overline{123}$
- (B) $\sqrt{8}, -1.5, 0, \frac{2}{3}$
- (C) $\frac{5}{0}, -3, \sqrt{16}, .5$
- (D) $-\sqrt{64}, 8, 7.324879 \dots, \sqrt{0}$

3. Which of the following is never a rational number?

- (A) A number with 0 in the numerator
- (B) A terminating decimal
- (C) A repeating decimal
- (D) π

4. Choose the product that will result in a rational number.

- (A) $\sqrt{9} \times \sqrt{4}$
- (B) $\sqrt{3} \times \sqrt{4}$
- (C) $\sqrt{8} \times \sqrt{3}$
- (D) $\sqrt{16} \times 3\pi$



5. Which of the following sums will result in a rational number?

- (A) $2\sqrt{4} + \sqrt{5}$
- (B) $\sqrt{12} + 2$
- (C) $\frac{1}{2} + \sqrt{25}$
- (D) $\sqrt{7} + \pi$

6. Which of the following illustrates that the sum of two irrational numbers isn't always irrational?

- (A) $\sqrt{5} + \sqrt{6}$
- (B) $\sqrt{3} + \sqrt{7}$
- (C) $\sqrt{8} + \pi$
- (D) $\sqrt{2} + (-\sqrt{2})$

7. The number x is rational. What is true about $x + \pi$?

- (A) $x + \pi$ is rational.
- (B) $x + \pi$ is irrational.
- (C) $x + \pi$ can be either rational or irrational.
- (D) We can't determine whether $x + \pi$ is rational or not without knowing the value of x .

8. Which example below demonstrates that the product of two irrational numbers isn't always irrational?

- (A) $4\sqrt{3} \times \sqrt{12}$
- (B) $\sqrt{7} \times \sqrt{5}$
- (C) $\pi \times \pi$
- (D) $\sqrt{3} \times \pi$

9. Which example below illustrates the one case where the product of a rational number and an irrational number isn't always irrational?

- (A) $4 \times \sqrt{12}$
- (B) $2 \times \frac{1}{\sqrt{2}}$
- (C) $2 \times \pi$
- (D) $\frac{\sqrt{0}}{5} \times \pi$



10. If the height of a baby kangaroo is 1 foot 10 inches, about how many centimeters tall is the baby kangaroo? There are 12 inches in a foot and about 2.5 centimeters in an inch.

- (A) About 120 cm
- (B) About 30 cm
- (C) About 60 cm
- (D) About 14.5 cm

11. Which of the following measurements is accurate to the tens place?

- (A) 123.4 cm
- (B) 120 in
- (C) 123.0 ft
- (D) 3.40 lb

12. How many cases of water will the 15 members of a soccer team need if each case includes 12 bottles and each player drinks 2 bottles? How many extra bottles of water will be left over?

- (A) 3 cases; 2 extra bottles
- (B) 2 cases; 6 extra bottles
- (C) 1 case; 3 extra bottles
- (D) 3 cases; 6 extra bottles

13. A model of a building uses a scale where 1 inch equals 5 feet. If the actual height of the building is 150 feet, how tall will the model be?

- (A) 10 feet
- (B) 5 feet
- (C) 30 feet
- (D) 30 inches



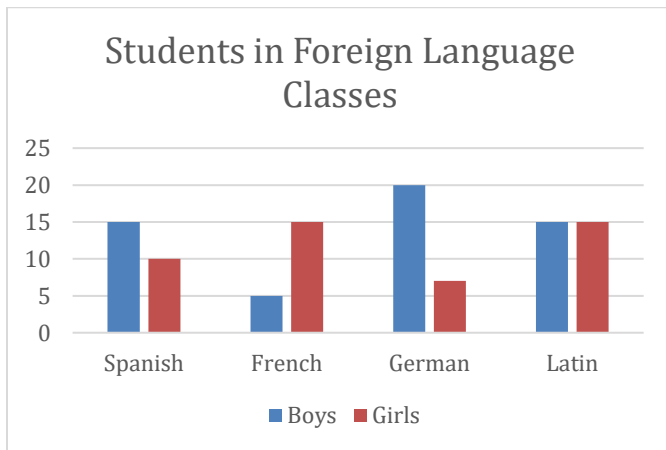
14. If a bicycle racer goes on 10 training rides each month, what additional information would be needed to calculate how many miles the bicyclist rides per year?

- (A) $\frac{\text{days of riding}}{\text{month}}$ and $\frac{\text{miles of riding}}{\text{month}}$
- (B) $\frac{\text{days of riding}}{\text{month}}$ and $\frac{\text{miles of riding}}{\text{day}}$
- (C) $\frac{\text{months of riding}}{\text{year}}$ and $\frac{\text{miles of riding}}{\text{ride}}$
- (D) $\frac{\text{months of riding}}{\text{year}}$ and $\frac{\text{miles of riding}}{\text{hour}}$

15. The height of a large square box is 3 feet. What units would be used to express the volume of the box?

- (A) ft
- (B) ft²
- (C) ft³
- (D) ft⁴

16. Which foreign language class has the most students?



- (A) Spanish
- (B) French
- (C) German
- (D) Latin



17. If a hawk can fly z miles in b hours, which of the following expressions represents how far it can fly in c hours?

(A) $\frac{zc}{b}$

(B) $\frac{z}{bc}$

(C) $\frac{zb}{c}$

(D) $\frac{bc}{z}$

18. The type of pump used at GaseroI gas stations automatically stop pumping when the tank is full. If the pump is accurate to within 1 gallon, what is the least amount of gas that could be put into an empty 20-gallon tank?

(A) 19 gallons

(B) 19.5 gallons

(C) 20 gallons

(D) 20.5 gallons