

Que 1. If $3x+2=11$, what is the value of x ?

Explanation: Subtract 2 from both sides to get $3x=9$. Then divide both sides by 3 to get $x=3$.

Answer: $x=3$

Que 2. The average (arithmetic mean) of 5, 10, 15, and 20 is:

Explanation: Add the numbers: $5+10+15+20=50$. Divide by the number of values (4): $50\div 4=12.5$

Answer: 12.5

Ques 3. If a car travels 150 miles in 2.5 hours, what is the average speed in miles per hour?

Explanation: Divide the total distance by the total time: $150\div 2.5=60$

Answer: 60 miles per hour

Ques 4. Solve for y : $2y-7=3y+4$.

Explanation: Subtract $2y$ from both sides to get $-7=y+4$. Then subtract 4 from both sides to get $y=-11$.

Answer: $y=-11$.

Ques 5. If $f(x)=x^2-3x+2$, find $f(2)$.

Explanation: Substitute 2 for (x): $f(2)=2^2-3(2)+2=4-6+2=0$. $f(2)=2^2-3(2)+2=4-6+2=0$.

Answer: 0

Ques 6. Expand the expression $(x + 3)(x - 2)$.

Explanation: Use the distributive property: $x^2-2x+3x-6=x^2+x-6$. $x^2-2x+3x-6=x^2+x-6$.

Answer: ($x^2 + x - 6$)

Ques 7. If ($x^2 = 16$), what are the possible values of (x)?

Explanation: Take the square root of both sides: $(x=\pm 4)$. $(x=\pm 4)$.

Answer: ($x = 4$) or ($x = -4$)

Ques 8. What is the area of a triangle with a base of 8 cm and a height of 5 cm?

Explanation: Use the formula for the area of a triangle: $(12 \times \text{base} \times \text{height} = 12 \times 8 \times 5 = 20)$. $(21 \times \text{base} \times \text{height} = 21 \times 8 \times 5 = 20)$

Answer: 20 cm²

Ques 9. What is the circumference of a circle with a radius of 7 cm?

Explanation: Use the formula for the circumference: $(2\pi r = 2 \times 3.14 \times 7 = 43.96)$. $(2\pi r = 2 \times 3.14 \times 7 = 43.96)$

Answer: 43.96 cm

Ques 10. Find the length of the hypotenuse of a right triangle with legs of length 6 cm and 8 cm.

Explanation: Use the Pythagorean theorem: $(6^2+8^2=36+64=100=10^2)$.
 $(6^2+8^2=36+64=100=10^2)$.

Answer: 10 cm

Ques 11. What is the volume of a cylinder with a radius of 3 cm and a height of 5 cm? (Use $\pi \approx 3.14$) (Use $\pi \approx 3.14$)

Explanation: Use the formula for the volume of a cylinder: $(\pi r^2 h = 3.14 \times 3^2 \times 5 = 3.14 \times 9 \times 5 = 141.3)$.
 $(\pi r^2 h = 3.14 \times 3^2 \times 5 = 3.14 \times 9 \times 5 = 141.3)$.

Answer: 141.3 cm³

Ques 12. The mean of five numbers is 8. If four of the numbers are 7, 9, 12, and 5, what is the fifth number?

Explanation: Let the fifth number be (x). Then $7+9+12+5+x=8 \times 5$.
 $7+9+12+5+x=8 \times 5$. Simplify to get $(33+x=40)$. Multiply both sides by 5 to get $(33+x=40)$. Subtract 33 to get $(x=7)$.

Answer: 7

Ques 13. A survey of 200 people found that 120 like coffee, 150 like tea, and 80 like both. How many people do not like either coffee or tea?

Explanation: Use the principle of inclusion and exclusion: $(120 + 150 - 80 = 190)$. Thus, $(200 - 190 = 10)$.

Answer: 10

Ques 14. A dataset contains the numbers 5, 7, 9, 11, and 13. What is the median?

Explanation: The median is the middle number in a sorted list. The sorted list is already given: 5, 7, 9, 11, 13. The middle number is 9.

Answer: 9

Ques 15. A jar contains 4 red, 5 blue, and 6 green marbles. If one marble is picked at random, what is the probability it is blue?

Explanation: The total number of marbles is $(4 + 5 + 6 = 15)$. The probability of picking a blue marble is $(\frac{5}{15} = \frac{1}{3})$.

Answer: $(\frac{1}{3})$

Ques 16. Simplify the expression: $(3(x - 2) + 4)$.

Explanation: Distribute the 3: $(3x - 6 + 4 = 3x - 2)$.

Answer: $(3x - 2)$

Ques 17. If (x) is directly proportional to (y) and $(x = 10)$ when $(y = 2)$, what is (x) when $(y = 8)$?

Explanation: If (x) is directly proportional to (y) , $(x = ky)$. Using $(x = 10)$ and $(y = 2)$, $(k = 5)$. Therefore, when $(y = 8)$, $(x = 5 \times 8 = 40)$.

Answer: 40

Ques 18. If $(2x + 3 = 9)$, what is the value of (x) ?

Explanation: Subtract 3 from both sides to get $(2x = 6)$. Then divide both sides by 2 to get $(x = 3)$.

Answer: $(x = 3)$

Ques 19. A right triangle has one leg of 5 cm and a hypotenuse of 13 cm. What is the length of the other leg?

Explanation: Use the Pythagorean theorem: Let the other leg be (x) . Then $(5^2 + x^2 = 13^2)$. Simplify to get $(25 + x^2 = 169)$. Subtract 25 to get $(x^2 = 144)$. Take the square root to get $(x = 12)$.

Answer: 12 cm