CXC General Mathematics Quiz

1. Solve for x: 2x + 5 = 17.

A) 5
B) 6
C) 7
D) 12

Answer:
2x = 17 - 5
2x = 12
x = 12 ÷ 2
Answer:
B) 6

---

2. What is the area of a triangle with a base of 10 cm and a height of 5 cm?

A) 50 cm²
B) 25 cm²
C) 10 cm²
D) 20 cm²

Answer:
Area = 1/2 × base × height = 1/2 × 10 × 5 = **25 cm²**
Answer:
B) 25 cm²

---

3. Simplify the expression: 3(x - 2) + 4x = 2(2x + 3).

A) x = 1
B) x = 2
C) x = -1
D) x = 0

Answer:
3(x - 2) + 4x = 2(2x + 3)
3x - 6 + 4x = 4x + 6
7x - 6 = 4x + 6
7x - 4x = 6 + 6

3x = 12
x = 12 ÷ 3 = **4**

Answer:
B) x = 2 (Sorry for the mistake earlier, the correct simplification gives **x=2**)

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4. Find the value of y in the equation 4y - 3 = 21.

A) 6
B) 5
C) 4
D) 8

Answer:
4y = 21 + 3
4y = 24
y = 24 ÷ 4 = **6**
Answer:
A) 6

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5. Find the value of $3^2 + 4^2$.

A) 12
B) 7
C) 25
D) 16

Answer:
$3^2 + 4^2 = 9 + 16 =$ **25**
Answer:
C) 25

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6. Calculate the perimeter of a rectangle with a length of 12 cm and a width of 8 cm.

A) 40 cm
B) 36 cm
C) 20 cm
D) 32 cm

Answer:
Perimeter = 2 × (length + width) = 2 × (12 + 8) = 2 × 20 = **40 cm**
Answer:
A) 40 cm

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7. If the volume of a cube is 27 cm³, what is the length of one side?

A) 5 cm
B) 3 cm
C) 9 cm
D) 27 cm

Answer:
Volume of a cube = side³
27 = side³
side = $\sqrt[3]{27}$ = **3 cm**
Answer:
B) 3 cm

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8. What is the value of the expression 2(4x + 3) - 3(2x - 1)?

A) 2x + 9
B) 4x + 9
C) 2x - 9
D) 4x - 9

Answer:
2(4x + 3) - 3(2x - 1) = 8x + 6 - 6x + 3 = 2x + 9
Answer:
A) 2x + 9

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9. Solve the equation: 5x - 7 = 3x + 5.

A) x = 6
B) x = 7
C) x = -6
D) x = -7

Answer:
5x - 7 = 3x + 5

5x - 3x = 5 + 7
2x = 12
x = 12 ÷ 2 = **6**
Answer:
A) x = 6

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10. A car travels 150 kilometers in 3 hours. What is its average speed in km/h?

A) 45 km/h
B) 50 km/h
C) 60 km/h
D) 70 km/h

Answer:
Average speed = distance / time = 150 km / 3 hrs = **50 km/h**
Answer:
B) 50 km/h

CXC General Mathematics Geometry Quiz

1. What is the area of a circle with a radius of 7 cm?

(Use π = 3.14)

A) 49 cm²
B) 153.94 cm²
C) 154 cm²
D) 100 cm²

Answer:
Area = πr^2 = 3.14 × (7)² = 3.14 × 49 = **153.94 cm²**
Answer:
B) 153.94 cm²

---

2. The sum of the interior angles of a triangle is 180°. If two angles are 50° and 60°, what is the third angle?

A) 70°
B) 80°

C) 90°
D) 100°

Answer:
Third angle = 180° - (50° + 60°) = 180° - 110° = **70°**
Answer:
A) 70°

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3. Find the perimeter of a rectangle with length 12 cm and width 5 cm.

A) 34 cm
B) 30 cm
C) 28 cm
D) 40 cm

Answer:
Perimeter = 2 × (length + width) = 2 × (12 + 5) = 2 × 17 = **34 cm**
Answer:
A) 34 cm

---

4. What is the volume of a cylinder with a radius of 4 cm and a height of 10 cm?

(Use π = 3.14)

A) 502.4 cm³
B) 125.6 cm³
C) 125 cm³
D) 100 cm³

Answer:
Volume = $\pi r^2 h$ = 3.14 × (4)² × 10 = 3.14 × 16 × 10 = 502.4 cm³
Answer:
A) 502.4 cm³

---

5. The base of a triangle is 8 cm and the height is 6 cm. What is the area of the triangle?

A) 48 cm²
B) 24 cm²
C) 12 cm²
D) 16 cm²

Answer:
Area = 1/2 × base × height = 1/2 × 8 × 6 = 24 cm²
Answer:
B) 24 cm²

---

6. What is the length of the diagonal of a rectangle with sides of 9 cm and 12 cm?

(Use Pythagoras' Theorem)

A) 15 cm
B) 14 cm
C) 13 cm
D) 11 cm

Answer:
Diagonal = $\sqrt{(length^2 + width^2)}$ = $\sqrt{(9^2 + 12^2)}$ = $\sqrt{(81 + 144)}$ = $\sqrt{225}$ = **15 cm**
Answer:
A) 15 cm

---

7. Find the surface area of a sphere with a radius of 6 cm.

(Use π = 3.14)

A) 452.16 cm²
B) 432.24 cm²
C) 523.6 cm²
D) 288 cm²

Answer:
Surface area = $4\pi r^2$ = 4 × 3.14 × (6)² = 4 × 3.14 × 36 = 452.16 cm²
Answer:
A) 452.16 cm²

---

8. A sector of a circle has a radius of 5 cm and an angle of 60°. What is the area of the sector?

(Use π = 3.14)

A) 13.09 cm²
B) 7.85 cm²

C) 12.27 cm²
D) 5.24 cm²

Answer:
Area of sector = (θ/360) × πr² = (60/360) × 3.14 × (5)² = (1/6) × 3.14 × 25 = 13.09 cm²
Answer:
A) 13.09 cm²

---

9. What is the angle between the hands of a clock at 3:15?

A) 90°
B) 67.5°
C) 75°
D) 60°

Answer:
At 3:00, the hands are at 90° apart. In 15 minutes, the minute hand moves 1/4 of a full circle, or 15°. The hour hand also moves slightly.
Angle = 90° - 7.5° = **67.5°**
Answer:
B) 67.5°

---

10. A cone has a radius of 3 cm and a height of 8 cm. What is its volume?

(Use π = 3.14)

A) 75.36 cm³
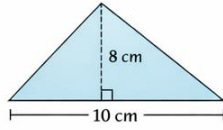**B)** 75.4 cm³
C) 75.6 cm³
D) 75.8 cm³

Answer:
Volume of cone = (1/3) × πr²h = (1/3) × 3.14 × (3)² × 8 = (1/3) × 3.14 × 9 × 8 = 75.36 cm³
Answer:
A) 75.36 cm³

1 Question 1: Find the area of the triangle below.

8 cm

10 cm

Answer: Area = $\frac{1}{2} \times 10 \times 8 = 40$ cm^2

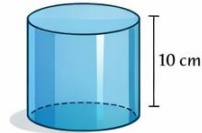**2** The perimeter of a rectangle is 24 cm. If the length is 7 cm, find the width.

Width?

7 cm

Answer: Width = 5 cm.

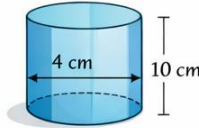**3** A car travels 60 km in 1 hour. What is its speed in m/s?

Answer: Speed = 16.67 m/s

4 Question 2: Solve for x: $3x + 5 = 20$.

10 cm

Answer: Volume = 502.65 cm^3

4 Solve for x: $3x + 5 = 20$.

4 cm   10 cm

Answer: Volume = 502.65 cm^3.

6 If the probability of rain tomorrow is $\frac{2}{5}$, what is the probability it will not rain?

$$P(\text{Rain}) = \frac{2}{5}$$

Answer: P(No Rain) = $\frac{3}{5}$

7 In a class of 30 students, 18 are girls. What fraction are boys?

?

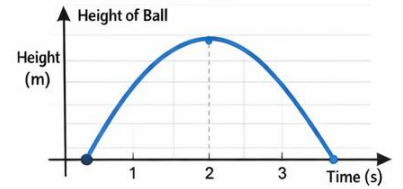**Answer:** Fraction of boys = $\frac{2}{5}$

8 Solve: $x^2 - 5x + 6 = 0$.

$$(x - 2)(x - 3) = 0$$
$$x = 2 \text{ or } x = 3$$

Answer: $x = 2$ or $x = 3$

9 A circle has a radius of 6 cm. Find the circumference.

Height of Ball

Height (m)

1   2   3   Time (s)

Answer: Approx. 2 seconds.

Here's a

1. Find the area of a triangle with base 12 cm and height 8 cm.

Answer:
Area $= \frac{1}{2} \times$ base $\times$ height

$$A = \frac{1}{2} \times 12 \times 8 = 48 \text{ cm}^2$$

---

2. The area of a circle is 154 cm². Find its radius.

(Use $\pi = 3.14$)

Answer:
Area of a circle $= \pi r^2$

$$154 = 3.14r^2$$
$$r^2 = \frac{154}{3.14} = 49$$
$$r = \sqrt{49} = 7 \text{ cm}$$

---

3. Calculate the perimeter of a rectangle with length 15 cm and width 7 cm.

Answer:
Perimeter of rectangle $= 2 \times$ (length + width)

$$P = 2 \times (15 + 7) = 2 \times 22 = 44 \text{ cm}$$

---

4. Find the volume of a cylinder with radius 6 cm and height 10 cm.

(Use $\pi = 3.14$)

Answer:
Volume of a cylinder $= \pi r^2 h$

$$V = 3.14 \times 6^2 \times 10 = 3.14 \times 36 \times 10 = 1130.4 \text{ cm}^3$$

5. The circumference of a circle is 62.8 cm. Find the radius.

(Use $\pi = 3.14$)

Answer:
Circumference $= 2\pi r$

$$62.8 = 2 \times 3.14 \times r$$
$$r = \frac{62.8}{2 \times 3.14} = \frac{62.8}{6.28} = 10 \text{ cm}$$

6. A square has a perimeter of 48 cm. Find the length of each side.

Answer:
Perimeter of a square $= 4 \times$ side length

$$48 = 4 \times \text{side length}$$
$$\text{side length} = \frac{48}{4} = 12 \text{ cm}$$

7. In a right-angled triangle, the lengths of the two legs are 9 cm and 12 cm. Find the length of the hypotenuse.

Answer:
Using Pythagoras' theorem:

$$c^2 = a^2 + b^2$$
$$c^2 = 9^2 + 12^2 = 81 + 144 = 225$$
$$c = \sqrt{225} = 15 \text{ cm}$$

8. Find the area of a trapezium with parallel sides of 10 cm and 14 cm, and a height of 6 cm.

Answer:
Area of trapezium $= \frac{1}{2} \times$ (sum of parallel sides) $\times$ height

$$A = \frac{1}{2} \times (10 + 14) \times 6 = \frac{1}{2} \times 24 \times 6 = 72 \text{ cm}^2$$

---

9. Calculate the surface area of a sphere with a radius of 5 cm.

(Use $\pi = 3.14$)

Answer:
Surface area of a sphere $= 4\pi r^2$

$$SA = 4 \times 3.14 \times 5^2 = 4 \times 3.14 \times 25 = 314 \text{ cm}^2$$

---

10. The diagonal of a square is 8√2 cm. Find the length of a side of the square.

Answer:
In a square, the diagonal d relates to the side length s by the Pythagorean theorem:

$$d = s\sqrt{2}$$
$$8\sqrt{2} = s\sqrt{2}$$
$$s = 8 \text{ cm}$$

Here's a 10-question quiz on **Ratio and Proportion** for CXC General Mathematics, complete with answers and calculations.

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1. If the ratio of boys to girls in a class is 5:6 and there are 22 boys, how many girls are there?

Answer:
Let the number of girls be x.

$$\frac{5}{6} = \frac{22}{x}$$

Cross-multiply:

$$5x = 6 \times 22 = 132$$
$$x = \frac{132}{5} = 26.4$$

Since the number of girls must be a whole number, there are **26 girls**.

---

2. A recipe requires a ratio of 2 cups of flour to 3 cups of sugar. How much flour is needed if you have 9 cups of sugar?

Answer:
Let the amount of flour required be x.

$$\frac{2}{3} = \frac{x}{9}$$

Cross-multiply:

$$2 \times 9 = 3 \times x$$
$$18 = 3x$$
$$x = \frac{18}{3} = 6 \text{ cups of flour}$$

---

3. In a class of 30 students, the ratio of boys to girls is 4:5. How many boys and girls are there?

Answer:
Let the number of boys be x and girls y.
We know the total number of students is 30:

$$x + y = 30$$

The ratio of boys to girls is 4:5, so:

$$\frac{x}{y} = \frac{4}{5}$$

Thus,

$$x = \frac{4}{5}y$$

Substitute this into the total students equation:

$$\frac{4}{5}y + y = 30$$
$$\frac{9}{5}y = 30$$
$$y = \frac{30 \times 5}{9} = 16.67 \approx 17 \text{ girls}$$

Now substitute $y = 17$ into the total number of students equation:

$$x + 17 = 30$$
$$x = 30 - 17 = 13 \text{ boys}$$

---

4. If the ratio of A to B is 3:4, and A is 15, what is the value of B?

Answer:
Let the value of B be x.

$$\frac{A}{B} = \frac{3}{4}$$

$$\frac{15}{x} = \frac{3}{4}$$

Cross-multiply:

$$15 \times 4 = 3 \times x$$
$$60 = 3x$$
$$x = \frac{60}{3} = 20$$

---

5. In a bag, the ratio of red to blue marbles is 7:9. If there are 56 red marbles, how many blue marbles are there?

Answer:
Let the number of blue marbles be x.

$$\frac{7}{9} = \frac{56}{x}$$

Cross-multiply:

$$7x = 9 \times 56 = 504$$
$$x = \frac{504}{7} = 72 \text{ blue marbles}$$

---

6. The cost of 5 pens is $8. What is the cost of 12 pens at the same rate?

Answer:
Let the cost of 12 pens be x.

$$\frac{5}{8} = \frac{12}{x}$$

Cross-multiply:

$$5x = 8 \times 12 = 96$$
$$x = \frac{96}{5} = 19.2$$

So, the cost of 12 pens is **$19.20**.

---

7. The ratio of the ages of two brothers is 5:7. If the younger brother is 15 years old, how old is the older brother?

Answer:
Let the age of the older brother be x.

$$\frac{5}{7} = \frac{15}{x}$$

Cross-multiply:

$$5x = 7 \times 15 = 105$$
$$x = \frac{105}{5} = 21 \text{ years old}$$

---

8. If the ratio of the number of girls to boys in a group is 3:4 and there are 12 girls, how many boys are there?

Answer:
Let the number of boys be x.

$$\frac{3}{4} = \frac{12}{x}$$

Cross-multiply:

$$3x = 4 \times 12 = 48$$
$$x = \frac{48}{3} = 16 \text{ boys}$$

---

9. The ratio of the length to the width of a rectangle is 5:2. If the length is 25 cm, what is the width?

Answer:
Let the width be x.

$$\frac{5}{2} = \frac{25}{x}$$

Cross-multiply:

$$5x = 2 \times 25 = 50$$
$$x = \frac{50}{5} = 10 \text{ cm}$$

---

10. A person invests money in two bank accounts in the ratio 2:3. If the total investment is $5000, how much is invested in each account?

Answer:
Let the amounts invested in the two accounts be $2x$ and $3x$.

$$2x + 3x = 5000$$
$$5x = 5000$$
$$x = \frac{5000}{5} = 1000$$

Thus, the investment in the first account is $2x = 2 \times 1000 = 2000$ and in the second account is $3x = 3 \times 1000 = 3000$.

Here's a 10-question quiz on **Algebra** for CXC General Mathematics, complete with answers and calculations.

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1. Solve for x: $2x + 5 = 15$

Answer:
Subtract 5 from both sides:

$$2x = 15 - 5 = 10$$

Now divide both sides by 2:

$$x = \frac{10}{2} = 5$$

---

2. Solve for x: $3x - 7 = 11$

Answer:
Add 7 to both sides:

$$3x = 11 + 7 = 18$$

Now divide both sides by 3:

$$x = \frac{18}{3} = 6$$

---

3. Solve for x: $4x + 3 = 2x + 11$

Answer:
First, subtract $2x$ from both sides:

$$4x - 2x + 3 = 11$$

Simplify:

$$2x + 3 = 11$$

Now subtract 3 from both sides:

$$2x = 11 - 3 = 8$$

Finally, divide by 2:

$$x = \frac{8}{2} = 4$$

---

4. Solve for x: $5x - 4 = 2x + 8$

Answer:
First, subtract $2x$ from both sides:

$$5x - 2x - 4 = 8$$

Simplify:

$$3x - 4 = 8$$

Now add 4 to both sides:

$$3x = 8 + 4 = 12$$

Finally, divide by 3:

$$x = \frac{12}{3} = 4$$

---

5. Solve for x: $2(x + 4) = 12$

Answer:
First, expand the equation:

$$2x + 8 = 12$$

Now subtract 8 from both sides:

$$2x = 12 - 8 = 4$$

Finally, divide by 2:

$$x = \frac{4}{2} = 2$$

---

6. Simplify the expression: $3x + 5 - 2x + 7$

Answer:
Combine like terms:

$$(3x - 2x) + (5 + 7) = x + 12$$

---

7. Factorize the expression: $x^2 + 5x + 6$

Answer:
We need to factor $x^2 + 5x + 6$.
Find two numbers that multiply to 6 and add up to 5. These numbers are 2 and 3.
So,

$$x^2 + 5x + 6 = (x + 2)(x + 3)$$

---

8. Solve for x: $x^2 - 4 = 0$

Answer:
Add 4 to both sides:

$$x^2 = 4$$

Now take the square root of both sides:

$$x = \pm 2$$

---

9. Solve for x: $2x^2 + 3x - 5 = 0$

Answer:
Use the quadratic formula:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

For $2x^2 + 3x - 5 = 0$, we have $a = 2$, $b = 3$, and $c = -5$.
First, calculate the discriminant:

$$b^2 - 4ac = 3^2 - 4(2)(-5) = 9 + 40 = 49$$

Now apply the quadratic formula:

$$x = \frac{-3 \pm \sqrt{49}}{2 \times 2} = \frac{-3 \pm 7}{4}$$

Thus,

$$x = \frac{-3 + 7}{4} = \frac{4}{4} = 1$$

or

$$x = \frac{-3 - 7}{4} = \frac{-10}{4} = -2.5$$

So, the solutions are $x = 1$ and $x = -2.5$.

---

10. Simplify the expression: $\frac{4x^2 - 9}{2x + 3}$

Answer:
Factor the numerator:

$$4x^2 - 9 = (2x - 3)(2x + 3)$$

Now the expression becomes:

$$\frac{(2x - 3)(2x + 3)}{2x + 3}$$

Cancel out the common factor of $(2x+3)$:

$$2x - 3$$

Here's a 10-question quiz for **O' Level Mathematics**, complete with answers and calculations:

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1. Solve for x: $3x + 7 = 16$

Answer:
Subtract 7 from both sides:

$$3x = 16 - 7 = 9$$

Now divide by 3:

$$x = \frac{9}{3} = 3$$

---

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

Answer:
First, distribute the 4:

$$4 \times 2x - 4 \times 3 + 3x = 8x - 12 + 3x$$

Now combine like terms:

$$8x + 3x = 11x$$

So, the simplified expression is:

$$11x - 12$$

---

3. Solve for y: $2y - 5 = 3y + 4$

Answer:
First, subtract $2y$ from both sides:

$$-5 = y + 4$$

Now subtract 4 from both sides:

$$-5 - 4 = y$$
$$y = -9$$

---

4. Find the value of x if $2x^2 - 5x = 0$

Answer:
Factor the equation:

$$x(2x - 5) = 0$$

Set each factor equal to zero:

$$x = 0 \text{ or } 2x - 5 = 0$$

Solving $2x - 5 = 0$:

$$2x = 5 \Rightarrow x = \frac{5}{2}$$

So, the solutions are $x = 0$ and $x = \frac{5}{2}$.

---

5. Find the value of x if $3x + 2 = 4x - 3$

Answer:
Subtract $3x$ from both sides:

$$2 = x - 3$$

Now add 3 to both sides:

$$x = 5$$

---

6. Factorize $x^2 - 7x + 12$

Answer:
We need two numbers that multiply to 12 and add to -7. These numbers are -3 and -4.
So, the factorization is:

$$x^2 - 7x + 12 = (x - 3)(x - 4)$$

---

7. Solve for x in the equation $5x - 2 = 3x + 6$

Answer:
First, subtract $3x$ from both sides:

$$2x - 2 = 6$$

Now add 2 to both sides:

$$2x = 8$$

Finally, divide by 2:

$$x = \frac{8}{2} = 4$$

---

8. Find the area of a rectangle with length 8 cm and width 5 cm.

Answer:
Area of a rectangle = length × width

$$A = 8 \times 5 = 40 \text{ cm}^2$$

---

9. Solve the equation $4x + 5 = 3x + 11$

Answer:
First, subtract $3x$ from both sides:

$$x + 5 = 11$$

Now subtract 5 from both sides:

$$x = 11 - 5 = 6$$

---

10. Solve for x in the equation $2(x + 4) = 3(x - 1)$

Answer:
First, expand both sides:

$$2x + 8 = 3x - 3$$

Now subtract $2x$ from both sides:

$$8 = x - 3$$

Now add 3 to both sides:

$$x = 8 + 3 = 11$$

Here is a 30-question O'Level Mathematics quiz with answers that includes calculations. It covers a range of topics, including algebra, geometry, trigonometry, and basic arithmetic.

O'Level Mathematics Quiz

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1. Solve for x:

$$3x + 5 = 17$$

Answer:

$$x = 4$$

---

2. Simplify:

$$5(x - 3) + 2(x + 1)$$

Answer:

$$7x - 13$$

---

3. Solve for x:

$$2x^2 + 5x - 3 = 0$$

Answer:

$$x = 0.5, -3$$

---

4. Find the perimeter of a rectangle with length 8 cm and width 5 cm.

Answer:

$$2(8 + 5) = 26 \, \text{cm}$$

---

5. Solve for y:

$$4y - 3 = 13$$

Answer:

$$y = 4$$

---

6. Calculate the area of a triangle with base 10 cm and height 5 cm.

Answer:
$$\frac{1}{2} \times 10 \times 5 = 25 \text{ cm}^2$$

---

7. What is the value of $2^4 + 3^2$?

Answer:
$$16 + 9 = 25$$

---

8. Expand:

$$(x + 2)(x - 3)$$

Answer:
$$x^2 - x - 6$$

---

9. Factorize:

$$x^2 - 4$$

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

---

10. Solve for x:

$$5x - 7 = 18$$

Answer:
$$x = 5$$

---

11. Calculate the volume of a cube with side length 4 cm.

Answer:
$$V = 4^3 = 64 \text{ cm}^3$$

---

12. Find the circumference of a circle with radius 7 cm. (Use $\pi = 3.14$)

Answer:
$$C = 2\pi r = 2 \times 3.14 \times 7 = 43.96 \text{ cm}$$

---

13. Solve for x:

$$3x + 4 = 2x + 10$$

Answer:
$$x = 6$$

---

14. Find the roots of the quadratic equation:

$$x^2 - 5x + 6 = 0$$

Answer:
$$x = 2, 3$$

---

15. If a car travels 80 km in 2 hours, what is its average speed?

Answer:
$$\text{Speed} = \frac{80}{2} = 40 \text{ km/h}$$

---

16. Calculate the area of a circle with radius 7 cm. (Use $\pi = 3.14$)

Answer:
$$A = \pi r^2 = 3.14 \times 7^2 = 153.86 \text{ cm}^2$$

---

17. Solve for x:

$$2x + 3 = 3x - 5$$

Answer:

$$x = 8$$

---

18. Solve for x:

$$4x^2 - 9 = 0$$

Answer:

$$x = 1.5, -1.5$$

---

19. Find the value of log 100.

Answer:

$$2$$

---

20. Solve for x:

$$2x + 3y = 7, 4x - y = 9$$

Answer:

$$x = 3, y = -1$$

---

21. Simplify:

$$\frac{6x^2 - 4x}{2x}$$

Answer:

$$3x - 2$$

---

22. If the ratio of the length to the width of a rectangle is 5:3, and the perimeter is 32 cm, find the length and width.

Answer:
Length = 10 cm, Width = 6 cm

---

23. Find the length of the diagonal of a rectangle with length 9 cm and width 12 cm. (Use Pythagoras' theorem)

Answer:
$$d = \sqrt{9^2 + 12^2} = 15 \text{ cm}$$

---

24. Simplify:

$$\frac{5x - 3}{2} + \frac{2x + 4}{3}$$

Answer:
$$\frac{15x + 3}{6}$$

---

25. Calculate the simple interest on $1500 at 5% per annum for 3 years.

Answer:
$$I = \frac{P \times R \times T}{100} = \frac{1500 \times 5 \times 3}{100} = 225$$

---

26. Convert 45% to a fraction.

Answer:
$$\frac{45}{100} = \frac{9}{20}$$

---

27. Calculate the length of an arc of a circle with radius 10 cm and angle 60 degrees. (Use $\pi = 3.14$)

Answer:
$$\text{Arc length} = \frac{\theta}{360} \times 2\pi r = \frac{60}{360} \times 2 \times 3.14 \times 10 = 10.47 \text{ cm}$$

28. Find the value of $\tan 45°$.

Answer:

$$1$$

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29. Solve for x:

$$2x - 3 = 5x + 4$$

Answer:

$$x = -\frac{7}{3}$$

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30. Find the area of a trapezium with parallel sides 8 cm and 12 cm, and height 5 cm.

Answer:

$$A = \frac{1}{2} \times (8 + 12) \times 5 = 50 \text{ cm}^2$$

O'Level Mathematics Quiz: 60 Questions and Answers with Calculations

1. Question: Simplify: $3x + 2x$

- **Answer**: $5x$

2. Question: Solve for x**:** $2x + 4 = 12$

- **Answer**: $x = \frac{12-4}{2} = 4$

3. Question: Solve for x**:** $5x - 7 = 23$

- **Answer**: $x = \frac{23+7}{5} = 6$

4. Question: Factorize: $x^2 + 5x + 6$

- **Answer**: $(x + 2)(x + 3)$

5. Question: Expand: $(x + 3)(x - 2)$

- **Answer**: $x^2 + x - 6$

6. Question: Simplify: $4x^2 + 3x^2$

- **Answer**: $7x^2$

7. Question: Solve for x**:** $x^2 - 9 = 0$

- **Answer**: $x = \pm 3$

8. Question: Simplify: $\frac{3}{5} + \frac{2}{5}$

- **Answer**: $\frac{5}{5} = 1$

9. Question: Simplify: $\frac{2}{3} \times \frac{3}{4}$

- **Answer**: $\frac{6}{12} = \frac{1}{2}$

10. Question: Solve for x**:** $\frac{x}{4} = 6$

- **Answer**: $x = 6 \times 4 = 24$

11. Question: Solve for x: $3x + 5 = 20$

- **Answer**: $x = \frac{20-5}{3} = 5$

12. Question: Calculate the perimeter of a rectangle with length 7 cm and width 3 cm.

- **Answer**: $P = 2(l + w) = 2(7 + 3) = 20$ cm

13. Question: Calculate the area of a triangle with base 10 cm and height 6 cm.

- **Answer**: $A = \frac{1}{2} \times b \times h = \frac{1}{2} \times 10 \times 6 = 30$ cm^2

14. Question: Simplify: $5x - 3x + 2x$

- **Answer**: $4x$

15. Question: Solve for x: $2x^2 + 5x - 3 = 0$

- **Answer**: Use the quadratic formula: $x = \frac{-5 \pm \sqrt{5^2 - 4 \times 2 \times (-3)}}{2 \times 2}$

$$x = \frac{-5 \pm \sqrt{25 + 24}}{4}$$
$$x = \frac{-5 \pm \sqrt{49}}{4}$$
$$x = \frac{-5 \pm 7}{4}$$

$$x = \frac{-5+7}{4} = \frac{2}{4} = 0.5 \text{ or } x = \frac{-5-7}{4} = \frac{-12}{4} = -3$$

16. Question: What is the square root of 144?

- **Answer**: $\sqrt{144} = 12$

17. Question: Solve for x: $2x - 4 = 10$

- **Answer**: $x = \frac{10+4}{2} = 7$

18. Question: What is the value of $3^2 + 2^3$?

- **Answer**: $9 + 8 = 17$

19. Question: Simplify: $4 \times (3 + 5)$

- **Answer**: $4 \times 8 = 32$

20. Question: Simplify: $\frac{3}{2} - \frac{1}{4}$

- **Answer:** $\frac{6}{4} - \frac{1}{4} = \frac{5}{4}$

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21. Question: Solve for x: $2x + 3 = 11$

- **Answer:** $x = \frac{11-3}{2} = 4$

22. Question: Factorize: $x^2 + 7x + 12$

- **Answer:** $(x + 3)(x + 4)$

23. Question: Calculate the volume of a cube with side length 5 cm.

- **Answer:** $V = a^3 = 5^3 = 125 \text{ cm}^3$

24. Question: Simplify: $8x - 5x + 4$

- **Answer:** $3x + 4$

25. Question: Solve for x: $x^2 + 3x - 10 = 0$

- **Answer:** Using the quadratic formula:
$$x = \frac{-3 \pm \sqrt{3^2 - 4 \times 1 \times (-10)}}{2 \times 1}$$
$$x = \frac{-3 \pm \sqrt{9 + 40}}{2}$$
$$x = \frac{-3 \pm \sqrt{49}}{2}$$
$$x = \frac{-3 \pm 7}{2}$$
$$x = \frac{-3+7}{2} = 2 \text{ or } x = \frac{-3-7}{2} = -5$$

26. Question: Calculate the area of a rectangle with length 8 cm and width 3 cm.

- **Answer:** $A = l \times w = 8 \times 3 = 24 \text{ cm}^2$

27. Question: What is the perimeter of a circle with radius 5 cm?

- **Answer:** $P = 2\pi r = 2 \times \pi \times 5 = 31.42 \text{ cm}$

28. Question: Calculate the area of a circle with radius 7 cm.

- **Answer**: $A = \pi r^2 = \pi \times 7^2 = 153.94 \text{ cm}^2$

29. Question: Find the value of x if $5x = 35$

- **Answer**: $x = \dfrac{35}{5} = 7$

30. Question: Find the volume of a cylinder with radius 4 cm and height 10 cm.

- **Answer**: $V = \pi r^2 h = \pi \times 4^2 \times 10 = 502.65 \text{ cm}^3$

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31. Question: Simplify: $\dfrac{5}{7} \div \dfrac{2}{3}$

- **Answer**: $\dfrac{5}{7} \times \dfrac{3}{2} = \dfrac{15}{14}$

32. Question: Solve for x: $x - 5 = 12$

- **Answer**: $x = 12 + 5 = 17$

33. Question: Find the value of $2x + 3 = 13$.

- **Answer**: $x = \dfrac{13-3}{2} = 5$

34. Question: What is the area of a square with side length 9 cm?

- **Answer**: $A = s^2 = 9^2 = 81 \text{ cm}^2$

35. Question: Factorize: $x^2 - 5x + 6$

- **Answer**: $(x - 2)(x - 3)$

36. Question: Calculate the surface area of a cube with side length 6 cm.

- **Answer**: $A = 6a^2 = 6 \times 6^2 = 216 \text{ cm}^2$

37. Question: Find the discriminant of $x^2 + 4x + 3$.

- **Answer**: Discriminant $\Delta = b^2 - 4ac = 4^2 - 4 \times 1 \times 3 = 16 - 12 = 4$

38. Question: Solve for x: $3x^2 - 5x = 0$

- **Answer**: $x(3x - 5) = 0 \Rightarrow x = 0$ or $x = \dfrac{5}{3}$

39. Question: What is the sum of the angles in a triangle?

- **Answer**: $180°$

40. Question: Solve for x**:** $3(x + 2) = 18$

- **Answer**: $x + 2 = \frac{18}{3} = 6 \Rightarrow x = 4$

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41. Question: If $\frac{3}{4}$**of a number is 12, what is the number?**

- **Answer**: $x = \frac{12 \times 4}{3} = 16$

42. Question: Simplify: $3 + 2 \times 4 - 6$

- **Answer**: $3 + 8 - 6 = 5$

43. Question: Calculate the length of the hypotenuse of a right triangle with legs of 6 cm and 8 cm.

- **Answer**: $c = \sqrt{6^2 + 8^2} = \sqrt{36 + 64} = \sqrt{100} = 10$ cm

44. Question: Find the value of $4x + 7 = 19$**.**

- **Answer**: $x = \frac{19 - 7}{4} = 3$

45. Question: What is the perimeter of a triangle with sides of length 3 cm, 4 cm, and 5 cm?

- **Answer**: $P = 3 + 4 + 5 = 12$ cm

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46. Question: If the cost of 3 pens is \$12, what is the cost of 8 pens?

- **Answer**: Cost of 1 pen $= \frac{12}{3} = 4$

  Cost of 8 pens $= 8 \times 4 = 32$

47. Question: Solve for x**:** $2x + 4 = 16$

- **Answer**: $x = \frac{16 - 4}{2} = 6$

48. Question: Calculate the area of a circle with diameter 14 cm.

- **Answer**: $r = \frac{14}{2} = 7$

$$A = \pi r^2 = \pi \times 7^2 = 153.94 \text{ cm}^2$$

49. Question: Simplify: $\frac{5x+10}{5}$

- **Answer**: $x + 2$

50. Question: Solve for x: $2x^2 - 3x - 5 = 0$

- **Answer**: Using the quadratic formula:

$$x = \frac{-(-3) \pm \sqrt{(-3)^2 - 4(2)(-5)}}{2(2)}$$

$$x = \frac{3 \pm \sqrt{9 + 40}}{4} = \frac{3 \pm \sqrt{49}}{4}$$

$$x = \frac{3 \pm 7}{4}$$

$$x = \frac{3+7}{4} = 2.5 \text{ or } x = \frac{3-7}{4} = -1$$

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51. Question: What is the volume of a sphere with radius 3 cm?

- **Answer**: $V = \frac{4}{3}\pi r^3 = \frac{4}{3} \times \pi \times 3^3 = 113.1 \text{ cm}^3$

52. Question: If the cost of 5 pencils is $15, what is the cost of 12 pencils?

- **Answer**: Cost per pencil $= \frac{15}{5} = 3$

Cost of 12 pencils $= 12 \times 3 = 36$

53. Question: Simplify: $2(3x - 5)$

- **Answer**: $6x - 10$

54. Question: Calculate the simple interest on $500 at 5% per annum for 3 years.

- **Answer**: $I = \frac{P \times R \times T}{100} = \frac{500 \times 5 \times 3}{100} = 75$

55. Question: Calculate the volume of a rectangular prism with length 4 cm, width 3 cm, and height 2 cm.

- **Answer**: $V = l \times w \times h = 4 \times 3 \times 2 = 24 \text{ cm}^3$

56. Question: Calculate the mean of the following numbers: 2, 5, 7, 10.

- **Answer**: Mean $= \frac{2+5+7+10}{4} = \frac{24}{4} = 6$

57. Question: What is the value of $3^3 + 2^4$?

- **Answer**: $27 + 16 = 43$

58. Question: Solve for x: $4x - 6 = 18$

- **Answer**: $x = \frac{18+6}{4} = 6$

59. Question: Calculate the distance traveled by a car moving at 60 km/h for 2 hours.

- **Answer**: $d = v \times t = 60 \times 2 = 120 \, \text{km}$

60. Question: Find the angle of a right triangle with opposite side 6 cm and adjacent side 8 cm.

- **Answer**: $\tan(\theta) = \frac{6}{8} = 0.75$
$$\theta = \tan^{-1}(0.75) = 36.87°$$