ALBERTA MATH 20-3 · UNIT 4 · 25 QUESTIONS

Formulas, Slope and Proportional Reasoning — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **The area of a rectangle is given by A = lw. Rearranged to solve for w, the formula is**

- **A** $w = \frac{A}{l}$
- **B** $w = Al$
- **C** $w = \frac{l}{A}$
- **D** $w = A - l$

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2 **The perimeter of a rectangle is given by $P = 2l + 2w$. Rearranged to solve for l, the formula is**

- **A** $l = P - 2w$
- **B** $l = \frac{P - 2w}{2}$
- **C** $l = \frac{P + 2w}{2}$
- **D** $l = 2(P - w)$

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3 **Temperatures are converted using $F = \frac{9}{5}C + 32$. Rearranged to solve for C, the formula is**

- **A** $C = \frac{9}{5}(F - 32)$
- **B** $C = \frac{5}{9}F - 32$
- **C** $C = \frac{5}{9}(F - 32)$
- **D** $C = \frac{9}{5}(F + 32)$

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4 **Distance is given by d = rt. A delivery van travels at 80 km/h for 2.5 h. The distance travelled is**

- A 32 km
- B 82.5 km
- C 160 km
- D 200 km

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5 **In an electrical circuit, V = IR. The voltage is 24 V and the resistance is 6 ohms. The current is**

- A 4 A
- B 144 A
- C 30 A
- D 0.25 A

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6 **Body mass index is given by BMI = $\frac{m}{h^2}$, where m is mass in kilograms and h is height in metres. For m = 70 kg and h = 1.75 m, the BMI, to the nearest tenth, is**

- **A** 40.0
- **B** 22.9
- **C** 214.4
- **D** 122.5

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7 **The area of a triangle is given by A = $\frac{1}{2}$bh. Rearranged to solve for h, the formula is**

- **A** $h = \frac{A}{b}$
- **B** $h = \frac{A}{2b}$
- **C** $h = \frac{2A}{b}$
- **D** $h = \frac{b}{2A}$

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8 **The graph shows a roof line, with points A and B marked. The slope of the roof, as rise over run, is**

- **A** 3
- **B** 8
- **C** 48
- **D** $\frac{1}{3}$

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9 **A wheelchair ramp rises 0.75 m over a run of 15 m. The grade of the ramp, as a percent, is**

- **A** 5%
- **B** 20%
- **C** 0.05%
- **D** 7.5%

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10 **A 500 g bag of rice costs $4.00. The unit price per 100 g is**

- A $1.25
- B $0.80
- C $20.00
- D $0.08

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11 **A car uses 45 L of fuel to travel 600 km. Its fuel consumption, in litres per 100 km, is**

- A 13.3 L/100 km
- B 75.0 L/100 km
- C 7.5 L/100 km
- D 0.75 L/100 km

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12 **A recipe for 4 servings uses 300 mL of milk. The amount of milk needed for 10 servings is**

- **A** 120 mL
- **B** 600 mL
- **C** 900 mL
- **D** 750 mL

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13 **The density of a material is given by $d = \frac{m}{V}$. Rearranged to solve for V, the formula is**

- **A** $V = \frac{m}{d}$
- **B** $V = md$
- **C** $V = \frac{d}{m}$
- **D** $V = m - d$

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14 **A bus travels 150 km in 2 h at a steady speed. At the same speed, the distance it travels in 5 h is**

- A 60 km
- B 375 km
- C 300 km
- D 750 km

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15 **At an exchange counter, $5 US is worth $6.75 Canadian. The value of $20 US, in Canadian dollars, is**

- A $14.81
- B $26.75
- C $27.00
- D $135.00

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16 **The area of a circle is given by $A = \pi r^2$. Use $\pi = 3.14$. For a radius of 5 cm, the area is**

- A $31.4\ cm^2$
- B $15.7\ cm^2$
- C $157.0\ cm^2$
- D $78.5\ cm^2$

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17 **Simple interest is given by $I = Prt$. Rearranged to solve for r, the formula is**

- A $r = \frac{I}{Pt}$
- B $r = IPt$
- C $r = \frac{Pt}{I}$
- D $r = I - Pt$

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18 **Temperatures are converted using $F = \frac{9}{5}C + 32$. A temperature of 25°C is equal to**

- A 45.0°F
- B 77.0°F
- C 57.0°F
- D 45.9°F

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19 **A worker earns $450 for 30 h of work. Her hourly rate of pay is**

- A $420.00 per hour
- B $13500.00 per hour
- C $15.00 per hour
- D $480.00 per hour

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20 **The perimeter of a square is given by P = 4s. Rearranged to solve for s, the formula is**

- **A** $s = 4P$
- **B** $s = P - 4$
- **C** $s = \frac{4}{P}$
- **D** $s = \frac{P}{4}$

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21 **One litre of paint covers 12 m². The number of litres needed to cover a wall of 42 m² is**

- **A** 3.5 L
- **B** 504 L
- **C** 0.29 L
- **D** 30 L

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22 **The graph shows water added to a tank over time. The rate of flow, as a rate of change, is**

A 0.03 L/min

B 30 L/min

C 248 L/min

D 1920 L/min

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23 **In an electrical circuit, V = IR. The voltage is 120 V and the current is 10 A. The resistance is**

A 1200 ohms

B 110 ohms

C 12 ohms

D 130 ohms

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24 On a scale drawing, 1 cm represents 2.5 m. A wall drawn 6 cm long has an actual length of

- **A** 2.4 m
- **B** 3.5 m
- **C** 8.5 m
- **D** 15 m

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25 Electrical power is given by $P = \frac{W}{t}$, where W is work and t is time. Rearranged to solve for W, the formula is

- **A** $W = Pt$
- **B** $W = \frac{P}{t}$
- **C** $W = \frac{t}{P}$
- **D** $W = P - t$

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ANSWER KEY

1. A
2. B
3. C
4. D
5. A
6. B
7. C
8. D
9. A
10. B
11. C
12. D
13. A
14. B
15. C
16. D
17. A
18. B
19. C
20. D
21. A
22. B
23. C
24. D
25. A

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