ALBERTA MATH 20-3 · FINAL EXAM · 50 QUESTIONS

Final Exam — 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 **A closed soup can is a cylinder with radius 3 cm and height 8 cm. Its total surface area, to the nearest tenth of a cm², is**

- **A** 150.8 cm²
- **B** 207.3 cm²
- **C** 226.2 cm²
- **D** 527.8 cm²

Understand It with Pulse | Flag a mistake

2 **In the right triangle shown, the hypotenuse is 12 cm and the acute angle at B is 35°. The length of the side opposite the 35° angle, to the nearest tenth, is**

- A 6.9 cm
- B 9.8 cm
- C 8.4 cm
- D 14.6 cm

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3 **A chequing account at a credit union charges a monthly fee of $12.50, which includes the first 10 transactions. Each extra transaction costs $1.25. Jordan makes 16 transactions in a month. The total account fees for that month are**

- A $12.50
- B $7.50
- C $32.50
- D $20.00

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4 **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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5 **A histogram shows ages with these frequencies: 0-9: 3, 10-19: 7, 20-29: 5, 30-39: 2. How many people are in the 10-29 age range?**

- **A** 7
- **B** 5
- **C** 12
- **D** 17

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6 **The triangular end of a tent is shown. Its base is 8 m, its height is 6 m, and the tent is 10 m long. Its volume is**

- **A** 480 m^3
- **B** 24 m^3
- **C** 120 m^3
- **D** 240 m^3

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7 **A tree casts a shadow 15 m long on level ground. The angle of elevation of the sun, from the tip of the shadow to the top of the tree, is 40°. The height of the tree, to the nearest tenth, is**

- **A** 9.6 m
- **B** 11.5 m
- **C** 17.9 m
- **D** 12.6 m

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8 **An investment of $1 500 earns simple interest at 5% per year. The interest earned in 2 years is**

- **A** $150.00
- **B** $75.00
- **C** $1 650.00
- **D** $300.00

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9 **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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10 The line graph shows afternoon temperatures over five days, Monday to Friday in order. What was the temperature on Wednesday?

- A 12°C
- B 14°C
- C 9°C
- D 13°C

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11 A closed cardboard box is 10 cm long, 6 cm wide and 4 cm high. The total surface area of the box is

- A 248 cm^2
- B 240 cm^2
- C 124 cm^2
- D 480 cm^2

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12 In the right triangle shown, the legs are 6 cm and 8 cm. The measure of the smallest acute angle, to the nearest tenth of a degree, is

- A 36.9°
- B 53.1°
- C 45.0°
- D 30.0°

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13 Leah has a take home pay of $2 800 per month. Her rent is $980 per month. Rent is what percent of her take home pay?

- A 28%
- B 35%
- C 45%
- D 65%

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14 **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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15 **A histogram of test scores has these frequencies: 50-59: 4, 60-69: 9, 70-79: 11, 80-89: 6. How many students scored from 60 to 79?**

A 9

B 11

C 20

D 30

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16 **A cone shaped pile of gravel has radius 6 m and height 9 m. Its volume, to the nearest tenth of a m³, is**

- A 339.3 m³
- B 1017.9 m³
- C 1357.2 m³
- D 169.6 m³

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17 **A figure is enlarged with a linear scale factor of 3. The area of the enlarged figure is how many times the original area?**

- A 3
- B 6
- C 27
- D 9

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18 **If you make only the minimum payment on a credit card balance every month, what will happen?**

A You will pay off the balance within one month at no extra cost

B No interest will be charged on the balance

C You will pay exactly the cash price of the items, just more slowly

D You will take a long time to pay off the balance and pay a lot of interest

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19 **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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20 **The line graph shows rainfall, in millimetres, for April, May and June in order. What is the mean monthly rainfall?**

- A 30 mm
- B 50 mm
- C 40 mm
- D 120 mm

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21 **A cylindrical paint pail has radius 5 cm and height 10 cm. Its volume, to the nearest tenth of a cm^3, is**

- A 3141.6 cm^3
- B 314.2 cm^3
- C 78.5 cm^3
- D 785.4 cm^3

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22 **A shoebox is a rectangular prism. It sits on a table with its longest edges running left to right. Which description matches its top view?**

- A A rectangle with the long sides running left to right
- B A square with all sides equal
- C A rectangle standing upright on a short side
- D A circle

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23 **Which of the following is a fixed expense in a monthly budget?**

- A A monthly rent payment of the same amount each month
- B Weekly grocery spending that changes from week to week
- C Gasoline purchases, which depend on how much you drive
- D Money spent on movie tickets and other entertainment

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24 **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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25 **In a pictograph comparing two years, the symbol for the second year is drawn twice as tall and twice as wide as the symbol for the first year, even though the second value is only twice as large. Why is this misleading?**

- **A** Pictographs are never allowed in newspapers
- **B** The key is written below the graph
- **C** The larger symbol covers about four times the area, so the increase looks bigger than it is
- **D** The two symbols use different colours

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26 **A soup recipe uses 3 quarts of broth. Use 1 quart = 2 pints. This amount, in pints, is**

- A 6 pints
- B 1.5 pints
- C 12 pints
- D 3 pints

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27 **A kite string is 50 m long and makes an angle of 60° with the ground. The height of the kite above the ground, to the nearest tenth, is**

- A 25.0 m
- B 28.9 m
- C 86.6 m
- D 43.3 m

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28 **The graph shows the value of a deposit earning simple interest over time. What is the value of the deposit after 2 years?**

A $1100.00

B $1200.00

C $1300.00

D $1000.00

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29 **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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30 **Which graph is most appropriate for showing how many students scored in each grouped interval, such as 60-69 and 70-79?**

- **A** A circle graph
- **B** A line graph
- **C** A histogram
- **D** A pictograph

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31 **An open top cylindrical bucket has radius 4 cm and height 10 cm. Its surface area, counting the bottom and the side only, to the nearest tenth, is**

- **A** 351.9 cm^2
- **B** 251.3 cm^2
- **C** 502.7 cm^2
- **D** 301.6 cm^2

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32 **A ladder 10 ft long leans against a house, making an angle of 70° with the ground. The height it reaches, to the nearest tenth, is**

- A 3.4 ft
- B 9.4 ft
- C 10.0 ft
- D 27.5 ft

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33 **A student with a part time job earns $1 500 per month and spends $450 of it on food. Food is what percent of the monthly income?**

- A 30%
- B 70%
- C 3.3%
- D 45%

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34 **Temperatures are converted using $C = \frac{5}{9}(F - 32)$. A temperature of 68°F, to the nearest tenth, is equal to**

A 64.8°C

B 36.0°C

C 20.0°C

D 37.8°C

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35 **A category makes up 10% of a circle graph. What is the central angle of its sector?**

A 10°

B 18°

C 36°

D 90°

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36 **A basketball is a sphere with diameter 12 cm. Its volume, to the nearest tenth of a cm³, is**

- A 452.4 cm³
- B 904.8 cm³
- C 7238.2 cm³
- D 113.1 cm³

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37 **A ramp makes an angle of 15° with the horizontal. The horizontal distance it covers is 5.0 m. The length of the ramp, to the nearest tenth, is**

- A 4.8 m
- B 5.2 m
- C 1.3 m
- D 19.3 m

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38 **A jacket with a cash price of $240 is bought on store credit with 6 monthly payments of $46. How much extra is paid because the jacket was bought on credit?**

- A $276.00
- B $36.00
- C $46.00
- D $24.00

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39 **A carton of 12 eggs costs $3.60. The price per egg is**

- A $3.33
- B $43.20
- C $0.30
- D $0.03

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40 **A graph of monthly sales shows values of 98 and 102, but its vertical axis runs only from 90 to 105. Why does the second bar look so much larger than the first?**

- A The second value is actually twice the first
- B The bars are different colours
- C The truncated axis exaggerates a small difference of only 4
- D The graph should have been a circle graph

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41 **A farm tank holds 10 imperial gallons of fuel. Use 1 imperial gallon = 4.546 L. This amount, in litres, is**

- A 37.85 L
- B 45.46 L
- C 4.546 L
- D 454.6 L

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42 **A roof rises from the edge of a building to a centre ridge. The horizontal distance from the edge to the ridge is 4.0 m, and the roof makes an angle of 30° with the horizontal. The height of the ridge above the edge, to the nearest tenth, is**

- **A** 2.3 m
- **B** 2.0 m
- **C** 3.5 m
- **D** 6.9 m

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43 **Four students finish a race. Ana finishes ahead of Ben. Ben finishes ahead of Cara. Dan finishes behind Cara. Who finishes the race in second place?**

- **A** Ana
- **B** Ben
- **C** Cara
- **D** Dan

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44 **Body mass index is given by $BMI = \frac{m}{h^2}$, so $m = BMI \times h^2$. For a BMI of 24 and a height of 1.70 m, the mass, to the nearest tenth of a kilogram, is**

- A 40.8 kg
- B 14.1 kg
- C 69.4 kg
- D 8.3 kg

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45 **Which graph is most appropriate for comparing the numbers of tickets sold for each of five different movies in one weekend?**

- A A line graph
- B A histogram
- C A bar graph
- D A circle graph with no labels

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46 A worker fills bottles from a 9 L jug. Each bottle holds 750 mL. How many bottles can be filled completely?

- A 6
- B 90
- C 120
- D 12

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47 A ladder 6.0 m long leans against a wall, making an angle of 65° with the ground. The height the ladder reaches on the wall, to the nearest tenth, is

- A 2.5 m
- B 5.4 m
- C 6.0 m
- D 12.9 m

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48 **A store credit card charges 28% per year and a bank credit card charges 19% per year. On a balance of $500 carried for one year, how much more interest does the store card charge?**

- **A** $140.00
- **B** $95.00
- **C** $9.00
- **D** $45.00

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49 **A building code requires a ramp slope no steeper than $\frac{1}{12}$. The graph shows a ramp, with points A and B marked. Which statement about this ramp is correct?**

- **A** Its slope is 12, so it is too steep
- **B** Its slope is $\frac{1}{6}$, so it is too steep
- **C** Its slope is $\frac{1}{12}$, so it meets the requirement exactly
- **D** Its slope is $\frac{1}{12}$, so it does not meet the requirement

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50

A circle graph of a work crew shows Bus at 40%, Car at 30%, and Walk at 20%. What percent is in the Other category?

A 20%

B 30%

C 10%

D 40%

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ANSWER KEY

1. B
2. A
3. D
4. A
5. C
6. D
7. D
8. A
9. B
10. C
11. A
12. A
13. B
14. D
15. C
16. A
17. D
18. D
19. A
20. C
21. D
22. A
23. A
24. B
25. C
26. A
27. D
28. B
29. D
30. C
31. D
32. B
33. A
34. C
35. C
36. B
37. B
38. B
39. C
40. C
41. B
42. A
43. B
44. C
45. C
46. D
47. B
48. D
49. C
50. C

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