ALBERTA MATH 10C · 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 **The right triangle PQR shown has legs of length 7 cm and 24 cm and a hypotenuse of length 25 cm. The value of sin R is**

A $\frac{7}{25}$

B $\frac{25}{24}$

C $\frac{7}{24}$

D $\frac{24}{25}$

Understand It with Pulse | Flag a mistake

2 When written as a single power, $\frac{7^9}{7^4}$ is equal to

- **A** 7^{13}
- **B** 7^4
- **C** 7^{36}
- **D** 7^5

Understand It with Pulse | Flag a mistake

3 When $x^2 + 9x + 20$ is factored, the result is

- **A** $(x + 4)(x + 5)$
- **B** $(x + 2)(x + 10)$
- **C** $(x - 4)(x - 5)$
- **D** $(x + 20)(x + 1)$

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4 **The range of the relation {(1, -2), (3, 0), (3, 5), (6, -2)} is**

- A {1, 3, 6}
- B {-2, 0, 3, 5}
- C {-2, 0, 5}
- D {0, 5, 6}

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5 **For the line with equation y = -4x + 7, the slope and the y-intercept are**

- A Slope: 4 y-intercept: 7
- B Slope: -4 y-intercept: 7
- C Slope: -4 y-intercept: -7
- D Slope: 7 y-intercept: -4

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6 **The system y = 3x + 2 and y = 3x - 4 has**

A one solution

B no solution

C infinitely many solutions

D two solutions

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7 **A rectangular prism has a length of 8 cm, a width of 5 cm, and a height of 3 cm. The volume of the prism is**

A 40 cm^3

B 55 cm^3

C 158 cm^3

D 120 cm^3

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8 **A 6.0 m ladder leans against a vertical wall. The ladder makes an angle of 70° with the ground. The height the ladder reaches up the wall, to the nearest tenth of a metre, is**

- **A** 2.1 m
- **B** 5.5 m
- **C** 5.6 m
- **D** 6.4 m

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9 **If $2^x = 128$, then the value of x is ____.**

ANSWER _____

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10 **When $x^2 - 5x - 14$ is factored, the result is**

- A $(x - 7)(x - 2)$
- B $(x + 7)(x - 2)$
- C $(x - 7)(x + 2)$
- D $(x + 7)(x + 2)$

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11 **The graph shown gives the distance, d km, that a cyclist is from home over time, t h. The cyclist was stopped during the interval**

- A from 0 h to 2 h
- B from 3 h to 5 h
- C The cyclist was never stopped
- D from 2 h to 3 h

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12 **A line that is parallel to the line with equation 3x + 2y = 6 is**

A $y = \frac{2}{3}x - 1$

B $y = -\frac{3}{2}x + 4$

C $y = \frac{3}{2}x + 1$

D $y = -\frac{2}{3}x + 5$

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13 **Which system of equations has infinitely many solutions?**

A $x + y = 5$ $2x + 2y = 10$

B $y = 2x + 3$ $y = 2x - 1$

C $y = x + 1$ $y = -x + 1$

D $3x + y = 7$ $3x + y = 9$

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14 **A triangular prism has the triangular base shown. The base has a base of 6 cm and a height of 4 cm. The length of the prism is 10 cm. The volume of the prism is**

- A 60 cm^3
- B 96 cm^3
- C 240 cm^3
- D 120 cm^3

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15 **In a right triangle, the hypotenuse is 17 cm and an acute angle is 53°. The length of the side opposite the 53° angle, to the nearest tenth of a centimetre, is**

- A 10.2 cm
- B 21.3 cm
- C 13.6 cm
- D 12.8 cm

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16 **A bacteria culture starts with 300 bacteria, and the number of bacteria doubles every hour. The number of bacteria after 5 hours is ____.**

ANSWER _____

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17 **When $12x^3 - 27x$ is factored completely, the number of binomial factors in the factorization is**

ANSWER _____

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18 **If f(x) = 5 - 2x, then the value of f(-1) - f(2) is**

A 4

B 8

C 6

D -6

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19 **A point that lies on the line with equation y = -2x + 5 is**

A (0, -5)

B (2, -1)

C (3, 1)

D (1, 3)

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20 **If 3x - y = 5 and x + 2y = 11, then the value of x + y is**

A 5

B 6

C 8

D 7

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21 A fish tank measures 60 cm by 40 cm by 35 cm. Given that 1 L = 1000 cm^3, the number of litres of water the tank can hold is ____ L.

ANSWER _____

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22 The foot of a 7.2 m ladder is placed 1.8 m from the base of a vertical wall. The angle the ladder makes with the ground, to the nearest tenth of a degree, is ____°

ANSWER _____

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23 The value of $\sqrt[3]{-64}$ is

A 4

B -8

C 8

D -4

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24 **When (3x + k)(x - 2) is expanded, the constant term is -12. The value of k is**

ANSWER _____

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25 **For the function $f(x) = \frac{x - 6}{3}$, the value of f(15) is**

A 9

B 5

C 7

D 3

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26 **A plumber charges for a job according to the relation C = 45t + 60, where C is the total charge, in dollars, and t is the time, in hours. In this relation, the number 45 represents**

A the total charge

B the flat-rate fee

C the charge per hour

D the number of hours

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27 **The system 4x + 2y = 6 and 2x + y = 3 has**

A no solution

B exactly one solution

C infinitely many solutions

D exactly two solutions

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28 **A cylindrical water tank has a diameter of 2 m and a height of 3 m. Using the π key on your calculator, the volume of water the tank can hold, to the nearest whole number, is**

- A 3 m^3
- B 19 m^3
- C 38 m^3
- D 9 m^3

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29 **In a right triangle, the side adjacent to angle θ is 11 cm and the hypotenuse is 19 cm. The measure of angle θ, to the nearest tenth of a degree, is ____°**

ANSWER _____

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30 **The value of 3^{-3} is**

A -27

B $\frac{1}{27}$

C $-\frac{1}{27}$

D 27

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31 **The greatest common factor of $18x^3$ and $30x^2$ is**

A $6x^2$

B $3x^2$

C $6x^3$

D $90x^2$

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32 **A relation pairs x: -2, -1, 0, 1 with y: 3, 5, 3, 7 The domain and range of the relation are**

- **A** Domain: {-2, -1, 0, 1} Range: {3, 5, 7}
- **B** Domain: {3, 5, 7} Range: {-2, -1, 0, 1}
- **C** Domain: {-2, -1, 0, 1} Range: {3, 5}
- **D** Domain: {-2, -1, 0, 1, 3, 5, 7} Range: {3, 5, 7}

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33 **A line drops 8 units for every 4 units it runs to the right. The slope of this line is**

- **A** -2
- **B** 2
- **C** $-\frac{1}{2}$
- **D** $\frac{1}{2}$

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34 The solution to the system y = x - 2 and y = -2x + 4 is

- A (0, 2)
- B (2, 0)
- C (2, 2)
- D (-2, 0)

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35 The distance 2.4 km, expressed in metres, is

- A 240 m
- B 2400 m
- C 24000 m
- D 0.0024 m

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36 **A right triangle has a hypotenuse of 26 m and an acute angle of 65°. The length of the side adjacent to the 65° angle, to the nearest tenth of a metre, is**

- **A** 23.6 m
- **B** 11.0 m
- **C** 28.7 m
- **D** 13.0 m

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37 **A square has an area of 98 cm². The side length of the square, written as a mixed radical in simplest form, is equal to**

- **A** $2\sqrt{7}$
- **B** $7\sqrt{2}$
- **C** $14\sqrt{2}$
- **D** $49\sqrt{2}$

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38 **When (2x + 1)(3x - 4) is expanded, the result can be written in the form $ax^2 + bx + c$. The value of a + b + c is**

ANSWER

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39 **The graph of a function crosses the x-axis at -5 and 3, and crosses the y-axis at -15. The zeros of the function are**

A -5 and 3

B -15

C -5, 3, and -15

D 3 and -15

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40 **The equation 4x - 3y = 12 written in slope-intercept form is**

A $y = \frac{4}{3}x - 4$

B $y = -\frac{4}{3}x - 4$

C $y = \frac{4}{3}x + 4$

D $y = \frac{3}{4}x - 4$

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41 **Which system of equations has no solution?**

A y = 5x - 2 y = 5x + 3

B x - y = 4 2x - 2y = 8

C y = x + 2 y = -x + 6

D x + y = 1 2x - y = 5

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42 **A sphere has a radius of 6 cm. Using the π key on your calculator, the volume of the sphere, to the nearest tenth, is _____ cm³.**

ANSWER _____

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43 **In a right triangle, the hypotenuse is 24.0 cm and an acute angle is 36°. The length of the side opposite the 36° angle, to the nearest tenth of a centimetre, is _____ cm**

ANSWER _____

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44 **The value of $(-27)^{2/3}$ is**

A -9

B 9

C -18

D 18

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45 **When $18x^3 + 12x^2$ is divided by $6x^2$, the result is $ax + b$. The value of $2a + b$ is**

ANSWER _____

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46 **The graph of function f is shown. The value of f(2) - f(0) is**

A -6

B 6

C -8

D 8

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47 **Which equation represents the line shown?**

- A y = -3x + 10
- B y = -3x + 4
- C y = 3x + 4
- D y = -x + 8

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48 **The sum of the digits of a two-digit number is 8. Reversing the digits gives a number that is 18 less than the original number. The original number is**

- A 35
- B 53
- C 44
- D 62

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49 **A cone has a radius of 4 cm and a slant height of 6 cm. Using 3.14 for π, the surface area of the cone, to the nearest tenth, is _____ cm².**

ANSWER _____

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50 **The angle of elevation of an object, as seen from a point, is**

A The angle between the line of sight and the vertical

B The angle measured downward from the horizontal to the line of sight

C The angle measured upward from the horizontal to the line of sight

D The angle between the line of sight and the object

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ANSWER KEY

1. D
2. D
3. A
4. C
5. B
6. B
7. D
8. C
9. 7
10. C
11. D
12. B
13. A
14. D
15. C
16. 9600
17. 2
18. C
19. D
20. D
21. 84
22. 75.5
23. D
24. 6
25. D
26. C
27. C
28. D
29. 54.6
30. B
31. A
32. A
33. A
34. B
35. B
36. B
37. B
38. -3
39. A
40. A
41. A
42. 904.8
43. 14.1
44. B
45. 8
46. A
47. A
48. B
49. 125.6
50. C

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