NUNAVUT MATH 20-2 · 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 counterexample is best described as**

- **A** an example that proves a conjecture is true in every case
- **B** a statement that has been proven using deductive reasoning
- **C** a specific example that shows a conjecture is false
- **D** a conclusion reached by observing a pattern

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2 **A rectangle with a width of 6 cm and a length of 9 cm is similar to a larger rectangle with a width of 10 cm. The length of the larger rectangle is**

- A 12 cm
- B 13.5 cm
- C 15 cm
- D 19 cm

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3 **Triangle ABC is shown. AB = 5 cm, BC = 12 cm. The length of AC is**

- A 13 cm
- B 17 cm
- C 10 cm
- D 7 cm

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4 A student stands 25 m from the base of a building and measures the angle of elevation to the top of the building as 40°. The height of the building, to the nearest metre, is

- A 16 m
- B 19 m
- C 21 m
- D 30 m

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5 A radical that is equivalent to $3\sqrt{5}$ is

- A $\sqrt{15}$
- B $\sqrt{30}$
- C $\sqrt{75}$
- D $\sqrt{45}$

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6 **The range of the data set 23, 8, 17, 35, 12, 29 is**

- A 23
- B 27
- C 35
- D 12

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7 **The y-intercept of $y = 3x^2 - 2x + 8$ is**

- A -2
- B 3
- C -8
- D 8

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8 **For the line y = -3x + 7, the slope and y-intercept are**

- A Slope: -3 y-intercept: 7
- B Slope: 3 y-intercept: 7
- C Slope: -3 y-intercept: -7
- D Slope: 7 y-intercept: -3

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9 **Points are placed around a circle and every pair of points is joined by a segment. For 2, 3, 4 and 5 points, the numbers of segments are 1, 3, 6 and 10. Following the same pattern, the number of segments for 8 points is _____ Record your answer as a whole number.**

ANSWER _____

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10 **A map has a scale of 1 : 50000. Two locations that are actually 7.5 km apart are separated on the map, in centimetres, by _____**

ANSWER _____

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11 **A ray bisects an angle, splitting it into two angles measuring (5x - 6)° and (3x + 14)°. The value of x is**

- A 10
- B 4
- C 8
- D 20

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12 **A triangular sail has two sides of 12 m and 15 m with an included angle of 47°. The area of the sail, to the nearest tenth of a m², is**

- A 61.4 m²
- B 90.0 m²
- C 131.6 m²
- D 65.8 m²

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13 **A square garden has an area of 72 m². The length of one side of the garden, in simplest form, is $a\sqrt{b}$ m. The value of a + b is ____ Record your answer as a whole number.**

ANSWER _____

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14 **The population standard deviation of the data set 2, 4, 4, 6, 9, to the nearest hundredth, is _____**

ANSWER _____

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15 **The solutions to the equation $2x^2 + 3x - 2 = 0$ are**

A 2 and -0.5

B -2 and 0.5

C 2 and 0.5

D -2 and -0.5

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16 **When the system y = 3x - 2 and 2x + y = 13 is solved, the value of x is**

A 3

B 5

C 7

D 2

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17 **Reaching a general conclusion based on observations of a pattern is an example of**

A deductive reasoning

B a proof

C inductive reasoning

D a counterexample

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18 **A model car is built to a scale of 1 : 18. If the actual car is 4.5 m long, the length of the model, in centimetres, is _____**

ANSWER _____

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19 **Which of the following is NOT a valid condition for proving two triangles congruent?**

A SSS

B ASA

C AAS

D SSA

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20 From a point on the ground, the angle of elevation to the top of a tower is 30°. After walking 50 m directly toward the tower, the angle of elevation is 45°. The height of the tower, to the nearest tenth of a metre, is

- A 25.0 m
- B 50.0 m
- C 86.6 m
- D 68.3 m

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21 The simplified form of $\sqrt{75} - \sqrt{12}$ is

- A $\sqrt{63}$
- B $3\sqrt{3}$
- C $7\sqrt{3}$
- D $2\sqrt{3}$

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22 **Test scores are normally distributed with a mean of 250 and a standard deviation of 25. Approximately _____ % of the scores are below 200.**

ANSWER _____

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23 **The function $y = x^2 - 8x + 19$ written in vertex form is**

A $y = (x - 4)^2 + 3$

B $y = (x - 4)^2 - 3$

C $y = (x + 4)^2 + 3$

D $y = (x - 8)^2 + 19$

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24 **When the system 0.5x + y = 7 and x - y = 2 is solved, the solution is**

- A (4, 6)
- B (6, 4)
- C (2, 5)
- D (6, -4)

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25 **Alyssa claims that every multiple of 4 is also a multiple of 8. The most direct way to show that her claim is false is to**

- A test the first 100 multiples of 4
- B write a general algebraic proof
- C check several multiples of 4 to see whether they work
- D give one multiple of 4, such as 12, that is not a multiple of 8

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26 The exchange rate is 1 USD = 1.36 CAD. The cost, in Canadian dollars, to the nearest cent, of an item priced at $92 USD is _____

ANSWER _____

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27 An exterior angle of a triangle measures (4x)°. The two non-adjacent interior angles measure 35° and (2x + 5)°. The value of x is ____. Record your answer as a whole number.

ANSWER _____

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28 Triangle ABC is shown. BC = 30 cm, and angle B measures 67°. The length of the side opposite angle B, to the nearest tenth of a centimetre, is

A 27.6 cm

B 11.7 cm

C 32.6 cm

D 70.7 cm

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29 The simplified form of $\sqrt{32}$ is

- A $8\sqrt{2}$
- B $4\sqrt{2}$
- C $2\sqrt{8}$
- D $\sqrt{30}$

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30 In a class of 30 students, Jordan's science mark is higher than the marks of 24 of the students. Jordan's mark is approximately in the

- A 20th percentile
- B 24th percentile
- C 80th percentile
- D 96th percentile

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31 **A theatre sells 200 tickets at a price of 10 dollars per ticket. For each increase of 1 dollar in price, 10 fewer tickets are sold. The ticket price, in dollars, that gives the maximum revenue is _____ Record your answer as a whole number.**

ANSWER _____

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32 **The slope of the line through the points (-1, 4) and (3, -2) is**

A $\frac{3}{2}$

B -2/3

C $\frac{2}{3}$

D -3/2

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33 The terms of a pattern are 20, 17, 14, 11, … The next term is

- A 10
- B 9
- C 7
- D 8

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34 Five notebooks cost $7.50. The cost of one notebook is

- A $1.50
- B $2.50
- C $37.50
- D $0.67

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35 **Triangle ABC is shown. Angle B measures 58°. The measure of angle C is**

- A 122°
- B 32°
- C 58°
- D 90°

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36 **Two sides of a triangle are 10 cm and 14 cm, and the angle between them is 63°. The length of the third side, to the nearest tenth of a centimetre, is**

- A 13.0 cm
- B 17.2 cm
- C 20.6 cm
- D 11.4 cm

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37 The simplified form of $\sqrt{27} - \sqrt{3}$ is

- A $2\sqrt{3}$
- B $\sqrt{24}$
- C $3\sqrt{3}$
- D $4\sqrt{3}$

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38 In a course, homework is worth 20% of the final grade and tests are worth 80%. A student earns 90% on homework and 75% on tests. The student's final grade is

- A 82.5%
- B 80%
- C 78%
- D 76%

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39 The x-intercepts of $y = (x + 1)(x - 7)$ are

- A 1 and -7
- B -1 and 7
- C 1 and 7
- D -1 and -7

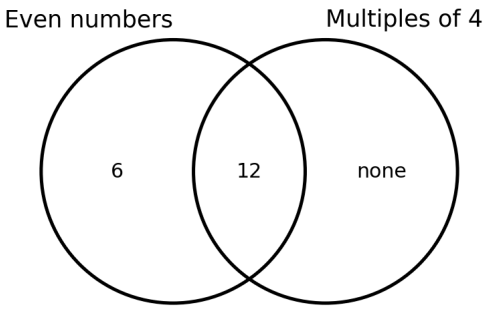
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40 The slope of the line through the points (2, -3) and (-4, 3) is

- A 1
- B -1
- C -6
- D 6

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41 **The Venn diagram shows even numbers and multiples of 4. Which statement about the numbers shown is true?**



A 6 is a multiple of 4

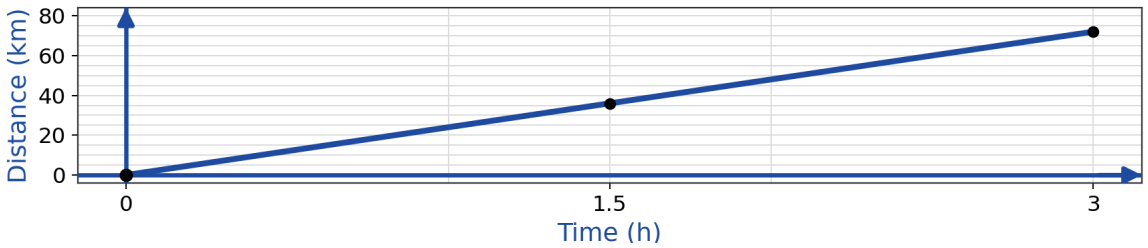
B 12 is even but is not a multiple of 4

C 6 is even but is not a multiple of 4

D Every even number shown is a multiple of 4

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42 **The graph shows distance against time for a cyclist travelling at a constant speed. The distance the cyclist travels in 2.5 h is**



A 54 km

B 60 km

C 90 km

D 40 km

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43 **A ray bisects an angle into two parts measuring (2x + 8)° and (4x - 10)°. The measure of the full angle is**

A 26°

B 44°

C 62°

D 52°

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44 **A triangular garden plot has two sides of 8 m and 11 m meeting at an angle of 95°. The length of the third side, to the nearest tenth of a metre, is**

- **A** 13.0 m
- **B** 13.6 m
- **C** 14.2 m
- **D** 19.0 m

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45 **When $\sqrt{98} + \sqrt{50}$ is simplified, the result is written as $a\sqrt{2}$. The value of a is ____ Record your answer as a whole number.**

ANSWER _____

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46 **Rosa's mark is in the 25th percentile of her class. This means that**

A Rosa scored in the top 25% of her class

B 25% of the scores are less than or equal to Rosa's mark

C Rosa's mark was 25%

D Rosa scored higher than 75% of her class

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47 **The smaller solution to the equation $2x^2 - 11x + 5 = 0$ is _____ Record your answer as a decimal.**

ANSWER _____

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48 **The sum of two numbers is 32. Twice the first number plus the second number is 46. The first number is ____**

ANSWER _____

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49 **Which of the following completes a valid deductive proof that the product of two even integers is always even?**

- **A** Since 4 × 6 = 24 and 2 × 8 = 16 are even, the product of two even integers is always even.
- **B** The sum of two even integers is even, so their product must be even as well.
- **C** Even integers end in 0, 2, 4, 6 or 8, so multiplying them gives an even result.
- **D** Let the integers be 2m and 2n. Their product is 4mn = 2(2mn), which is a multiple of 2, so the product is even.

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50 **Two cities that are 240 km apart are 8 cm apart on a map. The scale of the map is**

- **A** 1 cm : 3 km
- **B** 1 cm : 240 km
- **C** 1 cm : 30 km
- **D** 1 cm : 1920 km

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ANSWER KEY

1.	C	**18.**	25	**35.**	B
2.	C	**19.**	D	**36.**	A
3.	A	**20.**	D	**37.**	A
4.	C	**21.**	B	**38.**	C
5.	D	**22.**	2.5	**39.**	B
6.	B	**23.**	A	**40.**	B
7.	D	**24.**	B	**41.**	C
8.	A	**25.**	D	**42.**	B
9.	28	**26.**	125.12	**43.**	D
10.	15	**27.**	20	**44.**	C
11.	A	**28.**	A	**45.**	12
12.	D	**29.**	B	**46.**	B
13.	8	**30.**	C	**47.**	0.5
14.	2.37	**31.**	15	**48.**	14
15.	B	**32.**	D	**49.**	D
16.	A	**33.**	D	**50.**	C
17.	C	**34.**	A		

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