NUNAVUT MATHEMATICS 20-1 · UNIT 7

Systems of Equations and Inequalities — Practice Test

Nunavut Mathematics 20-1 • 10 questions

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 solution to the system $y = x^2 + 2$ and $y = -x^2 + 10$ is**

- **A** (-2, 6) and (2, 6)
- **B** (2, 6) only
- **C** (-2, -6) and (2, -6)
- **D** there is no real solution

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2 **A rectangle has a perimeter of 34 cm and an area of 60 cm². The length of the rectangle, in centimetres, is**

A 10

B 12

C 14

D 15

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3 **The constraints of a feasible region are x ≥ 0, y ≥ 0, y ≤ -2x + 10, and y ≥ x + 1. A point that does NOT belong to the feasible region is**

A (0, 3)

B (4, 2)

C (1, 5)

D (2, 4)

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4 **A company models its revenue by $R(x) = -x^2 + 80x$ and its costs by $C(x) = 15x + 1000$, where x is the number of items sold. The smaller value of x at which the company breaks even is**

- A 25
- B 40
- C 20
- D 30

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5 **The height, h, of a signal flare in metres after t seconds is given by $h = -5t^2 + 50t$. The later time, in seconds, at which the flare is 120 m above the ground is**

ANSWER _____

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6 **The two parabolas shown intersect at the points that are the solution to their system. The solution to the system is**

A (2, -1) and (3, 1)

B (2, 1) and (3, -1)

C (-2, -1) and (-3, 1)

D (1, 2) and (1, 3)

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7 **The system $y = x^2 - 2x + k$ and $y = 3x - 5$ has exactly one solution when the value of k is**

A 6.25

B 1.25

C -1.25

D 25

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8 **The graphs of $y = x^2 - 5x + 4$ and $y = -x^2 + 3x - 2$ intersect at two points. The product of the x-coordinates of the two points of intersection is**

ANSWER _____

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9 **Let $f(x) = x^2 + 2x - 8$ and $g(x) = -2x + 4$. The values of x for which $f(x) > g(x)$ are**

A $-6 < x < 2$

B $x < -6$ or $x > 2$

C $x > 2$ only

D all real values of x

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10 **The system $y = x^2 + 2x + 5$ and $y = -x^2 + 14x - 13$ has exactly one solution. The y-coordinate of this solution is**

ANSWER _____

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ANSWER KEY

1.	A	**5.**	6	**9.**	B
2.	B	**6.**	A	**10.**	20
3.	B	**7.**	B		
4.	A	**8.**	3		

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