ALBERTA MATH 20-1 · ALBERTA

Alberta Math 20-1

Practice Test

Unit 7: Systems of Equations and Inequalities

10 Questions

Original practice test based on the Alberta curriculum. Work through each question, then check your answers at the end.

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.

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Question 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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Question 2

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

A) 10

B) 12

C) 14

D) 15

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Question 3

The constraints of a feasible region are $x \geq 0,\ y \geq 0,\ y \leq -2x + 10,$ and $y \geq x + 1.$ 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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Question 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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Question 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

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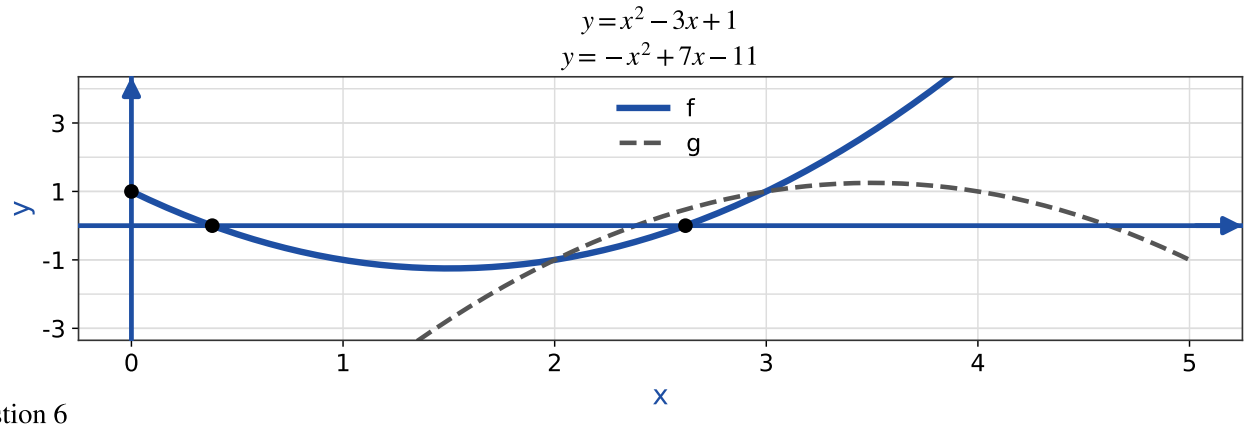

Question 6

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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Question 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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Question 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

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Question 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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Question 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

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ANSWER KEY

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

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