NORTHWEST TERRITORIES FOUNDATIONS OF MATHEMATICS 12 (MFOM-12) · UNIT A · 10 QUESTIONS

Geometry: Conics and Fractals — 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 foci of the ellipse $\frac{x^2}{25} + \frac{y^2}{16} = 1$ are

- **A** (± 3, 0)
- **B** (0, ± 3)
- **C** (± 5, 0)
- **D** (± 4, 0)

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2 The asymptotes of the hyperbola $\frac{x^2}{16} - \frac{y^2}{9} = 1$ are

- **A** $y = \pm \underline{4}$
- **B** $y = \pm \underline{3}$
- **C** $y = \pm \underline{9}$
- **D** $y = \pm \underline{16}$

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3 The vertices of the hyperbola $\frac{y^2}{25} - \frac{x^2}{4} = 1$ are

- **A** $(\pm 5, 0)$
- **B** $(0, \pm 2)$
- **C** $(0, \pm 5)$
- **D** $(\pm 2, 0)$

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4 The focus of the parabola $x^2 = 16y$ is

- A (0, 4)
- B (4, 0)
- C (0, 16)
- D (-4, 0)

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5 The directrix of the parabola $y^2 = -20x$ is

- A x = -5
- B y = 5
- C x = 5
- D y = -5

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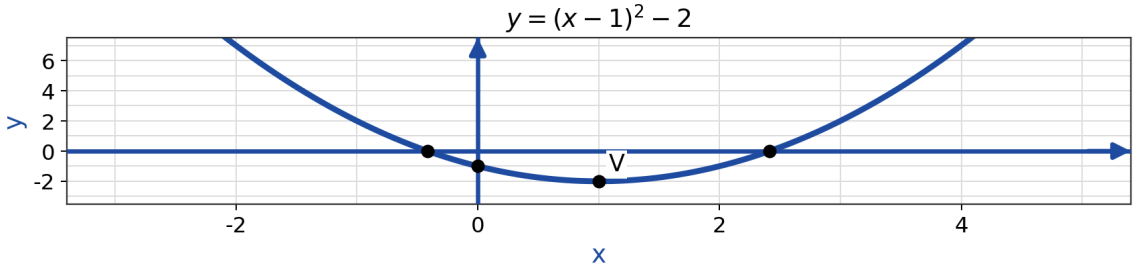
6 **The graph shows the parabola y = (x - 1)² - 2. Its vertex, marked V, is**



- **A** (1, 2)
- **B** (-1, -2)
- **C** (1, -2)
- **D** (-1, 2)

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7 **A Koch figure starts with 3 segments. Each step multiplies the segment count by 4. After 1 step, the number of segments is ____.**

ANSWER _____

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8 **A Sierpinski figure starts with 1 shaded triangle. Each step triples that count. After 2 steps, the number of shaded triangles is ____.**

ANSWER _____

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9 **Which of the following shapes is self-similar**

A Koch snowflake

B rectangle

C straight line

D ordinary circle

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10 **The conic $\frac{x^2}{4} - \frac{y^2}{9} = 1$ is a**

A circle

B ellipse

C parabola

D hyperbola

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ANSWER KEY

1. A
2. B
3. C
4. A
5. C
6. C
7. 12
8. 9
9. A
10. D

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