Montclair State University (MSU), Department of Mathematical Sciences

Sample Questions for Precalculus (MATH 111 & MATH 112) Readiness Test

Answers to the following sample questions are given below. (You will have 45 minutes to do 25 problems on the actual test.)

1. $8^{2/3} =$

    (a) $\dfrac{16}{3}$ (b) $\dfrac{64}{3}$ (c) 2   (d) 4   (e) none of these

2. $(x - 2)^2 =$

    (a) $x^2 - 4$ (b) $x^2 + 4$ (c) $x^2 - 4x + 4$ (d) $x^2 + 4x + 4$

    (e) none of these

3. What is the equation of a straight line passing through $(3, 2)$ with a slope of 4?

    (a) $y = 3x + 4$ (b) $y = 4x - 10$ (c) $3x + 2y = 4$ (d) $4x + 3y = 2$

    (e) none of these

4. If $a > 0$ and $b > 0$, then $3(a^0 b^2) =$

    (a) $3b^2$ (b) 3   (c) 1   (d) $3ab^2$ (e) none of these

5. The graph of $x^2 - y^2 = 10$ is

    (a) a circle   (b) an ellipse   (c) a hyperbola   (d) a parabola

    (e) none of these

6. The time in hours to travel 30 miles at $x - 1$ miles per hour is

    (a) $\dfrac{30}{x - 1}$ (b) $\dfrac{x - 1}{30}$ (c) $30(x - 1)$ (d) $30x - 1$ (e) none of these

7. Translate into mathematical equation: "3 is divided by 4 less than a number x and the result is 12"

    (a) $\dfrac{4 - x}{3}$ (b) $\dfrac{3}{4 - x}$ (c) $\dfrac{x}{3} - 4 = 12$ (d) $\dfrac{3}{x - 4} = 12$ (e) none of these

8. $\sqrt{5} + \sqrt{20} =$

    (a) $2\sqrt{5}$ (b) 5   (c) $3\sqrt{5}$ (d) 10   (e) none of these

9. Evaluate $ac^2 + a^3b$ if $a = 2, b = 3$, and $c = 4$

    (a) 27   (b) 32   (c) 49   (d) 56   (e) none of these

10. If the graph of $y = x^2 + 2x + k$ passes through the point $(1, 2)$, then $k =$

    (a) 1   (b) -1 (c) 2   (d) -2 (e) none of these

Answers: 1-d, 2-c, 3-b, 4-a, 5-c, 6-a, 7-d, 8-c, 9-d, 10-b