1. Which of the following functions transforms y = f(x) by moving it 5 units to the right? (A) y = f(x + 5) (B) y = f(x – 5) (C) y = f(x) + 5 (D) y = f(x) – 5 (E) y = 5f(x)

2. Which of the following functions stretches y = cos (x) vertically by a factor of 3? (A) y = cos(x + 3) (B) y = cos(3x) (C) y = (D) y = 3 cos x (E)

3. The graph of y = f(x) is shown.  Which of the following is the graph of y = f (–x) – 2? (A)  (B)  (C)  (D)  (E) 

4. Which of the following is a transformation of y = f(x) that translates this function down 3, shrinks it horizontally by a factor of 2, and reflects it about the x -axis. (A) y = –2f(x – 3) (B) y = f (–2x) – 3 (C) (D) y = –f (2x) – 3 (E)

1. Which of the following is a focus of (A) (1, –1) (B) (2, –1) (C) (3, –1) (D) (2, –2) (E) (–2, 1)

2. Which of the following is an asymptote of 3x2 – 4y2 – 12 = 0? (A) (B) (C) (D) (E)

3. The standard equation of a parabola with focus (2, –3) and directrix x = 6 is (A) x – 2 = 8(y + 3)2 (B) x – 4 = –8(y + 3)2 (C) y + 3 = 8(x – 2)2 (D) y – 3 = –8(x + 2)2 (E) y – 3 = –8(x + 4)2

4. The standard equation of an ellipse with vertices (–5, 2) and (3, 2) and minor axis of length 6 is (A) (B) (C) (D) (E)

5. Which of the following is a vertex of 16x2 – y2 – 32x – 6y – 57 = 0? (A) (1, –1) (B) (1, 3) (C) (1, 5) (D) (–1, –3) (E) (–1, 3)

6. The graph of x2 = (2y + 3)2 is (A) an ellipse (B) a parabola (C) a hyperbola (D) a circle (E) none of these and.

1. A point has polar coordinate (2,60°). The same point can be represented by (A) (–2,240°) (B) (2,240°) (C) (–2,60°) (D) (2,–60°) (E) (2,–240°)

2. The polar coordinates of a point P are (2,200°). The rectangular coordinates of P are (A) (–1.88,–0.68) (B) (–0.68,–1.88) (C) (–0.34,–0.94) (D) (–0.94,–0.34) (E) (–0.47,–0.17)

3. Describe the graph of . (A) a parabola (B) an ellipse (C) a circle (D) a vertical line (E) the x -axis