1. If {(3,2),(4,2),(3,1),(7,1),(2,3)} is to be a function, which one of the following must be removed from the set? (A) (3,2) (B) (4,2) (C) (2,3) (D) (7,1) (E) none of the above

2. For f(x) = 3x2 + 4, g(x) = 2, and h = {(1,1), (2,1), (3,2)}. (A) f is the only function (B) h is the only function (C) f and g are the only functions (D) g and h are the only functions (E) f, g, and h are all functions

3. What value(s) must be excluded from the domain of ? (A) –2 (B) 0 (C) 2 (D) 2 and –2 (E) no value

1. If f(x) = 3x2 – 2x + 4, f(–2) = (A) –12 (B) –4 (C) –2 (D) 12 (E) 20

2. If f(x) = 4x – 5 and g(x) = 3x , then f(g(2)) = (A) 3 (B) 9 (C) 27 (D) 31 (E) none of the above

3. If f(g(x)) = 4x2 – 8x and f(x) = x2 – 4, then g(x) = (A) 4 – x (B) x (C) 2x – 2 (D) 4x (E) x2

4. What values must be excluded from the domain of (x) if f(x) = 3x2 – 4x + 1 and g(x) = 3x2 – 3? (A) 0 (B) 1 (C) 3 (D) both ±1 (E) no values

5. If g(x) = 3x + 2 and g(f(x)) = x, then f(2) = (A) 0 (B) 1 (C) 2 (D) 6 (E) 8

6. If p(x) = 4x – 6 and p(a) = 0, then a = (A) −6 (B)-3/2 (C)3/2 (D) 2/3 (E) 2

7. If f(x) = ex and g(x) = sin x, then the value of (f . g)( ) is (A) –0.01 (B) –0.8 (C) 0.34 (D) 1.8 (E) 2.7

1. If , the inverse of , , could be represented by (A) (B) (C) (D) (E)

2. If , the inverse of , could be represented by (A) (B) (C) (D) (E) does not exist

3. The inverse of = {(1,2),(2,3),(3,4),(4,1),(5,2)} would be a function if the domain of is limited to (A) {1,3,5} (B) {1,2,3,4} (C) {1,5} (D) {1,2,4,5} (E) {1,2,3,4,5}

4. Which of the following could represent the equation of the inverse of the graph in the figure?  (A) y = –2x + 1 (B) y = 2x + 1 (C) (D) (E)

1. Which of the following relations are even? I. y = 2 II. f(x) = x III. x2 + y2 = 1 (A) only I (B) only I and II (C) only II and III (D) only I and III I I, II, and III

2. Which of the following relations are odd? I. y = 2 II. Y = x III. x2 + y2 = 1 (A) only II (B) only I and II (C) only I and III (D) only II and III I I, II, and III

3. Which of the following relations are both odd and even? I. x2 + y2 = 1 II. x2 – y2 = 0 III. x + y = 0 (A) only III (B) only I and II (C) only I and III (D) only II and III (E) I, II, and III

4. Which of the following functions is neither odd nor even? (A) {(1,2),(4,7),(–1,2),(0,4),(–4,7)} (B) {(1,2),(4,7),(–1,–2),(0,0),(–4,–7)} (C) y = x3 – 1 (D) y = x2 – 1 (E) f(x) = –x