

SAT Math Level 2 Practice Paper 8

SET 1

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 $f(x) = 3x^2 + 4$, $g(x) = 2$, 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 $f = \left\{ (x, y) : y = \frac{x+2}{x-2} \right\}$?

- A. -2
- B. 0
- C. 2
- D. 2 and -2
- E. no value

SET 2

1. If $f(x) = 3x^2 - 2x + 4$, $f(-2) =$

- A. -12
- B. -4
- C. -2
- D. 12
- E. 20

2. If $f(x) = 4x - 5$ and $g(x) = 3^x$, then $f(g(2)) =$

- A. 3
- B. 9
- C. 27
- D. 31
- E. none of the above

3. If $f(g(x)) = 4x^2 - 8x$ and $f(x) = x^2 - 4$, then $g(x) =$

- A. $4 - x$
- B. x
- C. $2x - 2$
- D. $4x$
- E. x^2

4. What values must be excluded from the domain of $\left(\frac{f}{g}\right)(x)$ if $f(x) = 3x^2 - 4x + 1$ and $g(x) = 3x^2 - 3$?

- 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. $-\frac{3}{2}$

C. $\frac{3}{2}$

D. $\frac{2}{3}$

E. 2

7. If $f(x) = e^x$ and $g(x) = \sin x$, then the value of $(f \circ g)(\sqrt{2})$ is

A. -0.01

B. -0.8

C. 0.34

D. 1.8

E. 2.7

SET 3

1. If $f(x) = 2x - 3$, the inverse of f , f^{-1} , could be represented by

A. $f^{-1}(x) = 3x - 2$

B. $f^{-1}(x) = \frac{1}{2x-3}$

C. $f^{-1}(x) = \frac{x-2}{3}$

D. $f^{-1}(x) = \frac{x+2}{3}$

E. $f^{-1}(x) = \frac{x+3}{2}$

2. If $f(x) = x$, the inverse of f , f^{-1} , could be represented by

A. $f^{-1}(x) = x$

B. $f^{-1}(x) = 1$

C. $f^{-1}(x) = \frac{1}{x}$

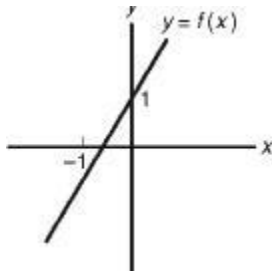
D. $f^{-1}(x) = y$

E. f^{-1} does not exist

3. The inverse of $f = \{(1,2),(2,3),(3,4),(4,1),(5,2)\}$ would be a function if the domain of f 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. $y = \frac{1}{2}x + 1$
- D. $y = \frac{1}{2}x - 1$
- E. $y = \frac{1}{2}x - \frac{1}{2}$

SET 4

1. Which of the following relations are *even*?

- I. $y = 2$
- II. $f(x) = x$
- III. $x^2 + y^2 = 1$

- A. only I
- B. only I and II
- C. only II and III
- D. only I and III
- E. I, II, and III

2. Which of the following relations are *odd*?

I. $y = 2$

II. $y = x$

III. $x^2 + y^2 = 1$

A. only II

B. only I and II

C. only I and III

D. only II and III

E. I, II, and III

3. Which of the following relations are both *odd* and *even*?

I. $x^2 + y^2 = 1$

II. $x^2 - y^2 = 0$

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. $y = x^3 - 1$

D. $y = x^2 - 1$

E. $f(x) = -x$

SET 5

1. The slope of the line through points $A(3,-2)$ and $B(-2,-3)$ is

A. -5

B. $-\frac{1}{5}$

C. $\frac{1}{5}$

D. 1

E. 5

2. The slope of line $8x + 12y + 5 = 0$ is

A. $-\frac{3}{2}$

B. $-\frac{2}{3}$

C. $\frac{2}{3}$

D. 2

E. 3

3. The slope of the line perpendicular to line $3x - 5y + 8 = 0$ is

A. $-\frac{5}{3}$

B. $-\frac{3}{5}$

C. $\frac{3}{5}$

D. $\frac{5}{3}$

E. 3

4. The y-intercept of the line through the two points whose coordinates are (5,-2) and (1,3) is

A. $-\frac{5}{4}$

B. $\frac{5}{4}$

C. $\frac{17}{4}$

D. 7

E. 17

5. The equation of the perpendicular bisector of the segment joining the points whose coordinates are (1,4) and (-2,3) is

A. $3x - 2y + 5 = 0$

B. $x - 3y + 2 = 0$

C. $3x + y - 2 = 0$

D. $x - 3y + 11 = 0$

E. $x + 3y - 10 = 0$

6. The length of the segment joining the points with coordinates (-2,4) and (3,-5) is

A. 2.8

B. 3.7

C. 10

D. 10.3

E. none of these

7. The slope of the line parallel to the line whose equation is $2x + 3y = 8$ is

A. -2

B. $-\frac{3}{2}$

C. $-\frac{2}{3}$

D. $\frac{2}{3}$

E. $\frac{3}{2}$

8. If the graph of $\pi x + \sqrt{2}y + \sqrt{3} = 0$ is perpendicular to the graph of $ax + 3y + 2 = 0$, then $a =$

A. -4.5

B. -2.22

C. -1.35

D. 0.45

E. 1.35