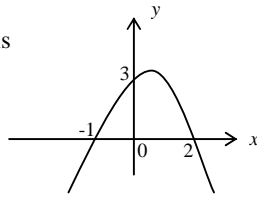


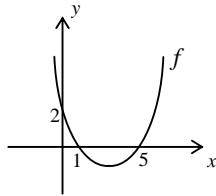
1. In the figure, the graph of $f(x) = ax^2 + bx + c$ is given. Find $f(1)$.

- A) $\frac{4}{3}$ B) $\frac{5}{3}$
 C) $\frac{5}{2}$ D) 3 E) $\frac{7}{2}$



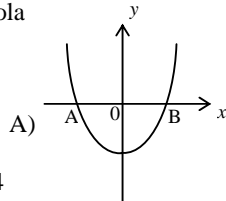
2. Find the minimum value of the parabola given in the figure.

- A) -3 B) -2 C) $-\frac{3}{2}$
 D) -1 E) $-\frac{8}{5}$

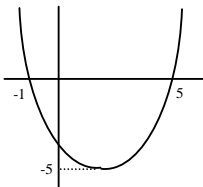


3. The equation of the parabola is $y = x^2 - 3x + k + 3$. If $|AB| = 6$, find $A \cdot B$.

- A) $-\frac{27}{4}$ B) $\frac{27}{4}$
 C) $\frac{25}{4}$ D) $-\frac{25}{4}$
 E) $\frac{23}{4}$

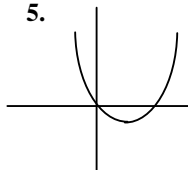


4. Write the equation of the parabola



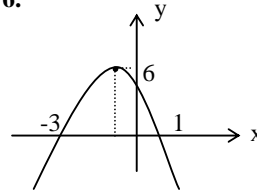
- a) $y = (x-2)^2 + 5$
 b) $y = (x+2)^2 + 5$
 c) $y = \frac{5}{9}(x-2)^2 - 5$
 d) $y = -\frac{5}{9}(x-2)^2 + 5$
 e) $y = -(x-2)^2 + 5$

5. In the adjacent figure, the graph of $cx^2 + ax + b$ is given. Which one of the followings is correct for a,b,c?



- a) $c > 0$ $a > 0$ $b = 0$ b) $c > 0$ $a > 0$ $b < 0$
 c) $c > 0$ $a < 0$ $b > 0$ d) $c > 0$ $a < 0$ $b < 0$
 e) $c > 0$ $a < 0$ $b = 0$

6. Which one of the followings is the equation of the parabola given in the figure?



- A) $y = -2x^2 - 4x + 6$ B) $y = -2x^2 + 5x + 6$
 C) $y = -2x^2 - 4x - 6$ D) $y = -2x^2 + 4x + 6$
 E) $y = -2x^2 + 6x + 4$

7. For the parabola $y = -3x^2 + 2mx + 5$, the largest value of the function is 17, and vertex lies in the second quadrant. Find m.

- A) -12 B) -6 C) -2 D) 2 E) 6

8. The parabola $y = \frac{x^2}{m}$ is tangent to the line $y = x - 2$. Find m.

- a) 0 b) 2 c) 4 d) 6 e) 8

9. If the graphs of the functions

$$f(x) = x^2 - (m-2)x + 2 \text{ and}$$

$$g(x) = -x^2 + 3x - n + 2 \text{ intersect x-axis at the same point, find } m + n = ?$$

- A) 3 B) 4 C) 5 D) 7 E) 9

10. One of the intersection points of the parabola $y = 2x^2 - mx + m - 3$ and the line $y = x - 2$ is on the x-axis. Find the other x-intercept of the parabola.

- A) -1 B) -1/2 C) 1/2 D) 1 E) 2