1. $\lim_{x\to\infty} \dfrac{2x^2-2x+1}{3-4x^2}$ equals

(A) 0

(B) 1

(C) $\frac{1}{2}$

(D) $-\frac{1}{4}$

(E) $-\frac{1}{2}$

2. Let $f(x) = \begin{cases} 2x+1 & \text{if } x > 1\,, \\ x-6 & \text{if } x < 1\,. \end{cases}$

What value should $f(1)$ be given to make f continuous from the right at $x = 1$?

(A) 1

(B) -5

(C) 3

(D) -1

(E) 0

3. If $f(x) = 3x^3 - 1$ then $f^{-1}(-25)$ equals

(A) 1

(B) 0

(C) 2

(D) -1

(E) -2

4. Set $f(x) = \dfrac{x^2 - 2x - 8}{x - 4}$. Then $\lim\limits_{x \to 4} f(x)$ equals

(A) 8

(B) 6

(C) 4

(D) 2

(E) 0

5. If $f(x) = |x|$ and $g(x) = x^2 - 8$ then

(A) $f \circ g\ (2) = 4$ and $g \circ f\ (2) = -4$

(B) $f \circ g\ (2) = 2$ and $g \circ f\ (2) = -2$

(C) $f \circ g\ (2) = -4$ and $g \circ f\ (2) = 4$

(D) $f \circ g\ (2) = -2$ and $g \circ f\ (2) = 2$

(E) $f \circ g\ (2) = 4$ and $g \circ f\ (2) = 4$

6. The range of $f(x) = \sin^2 x$ is

(A) $(0, 1)$

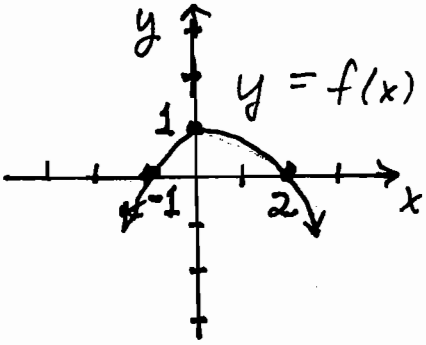
(B) $[0, 1)$

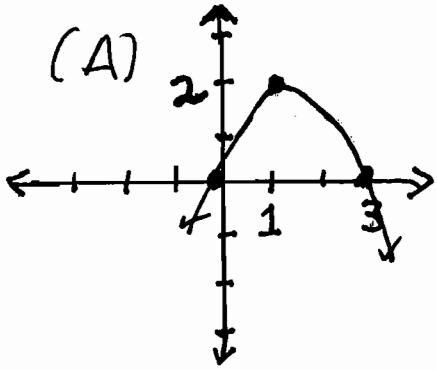
(C) $(0, 1]$

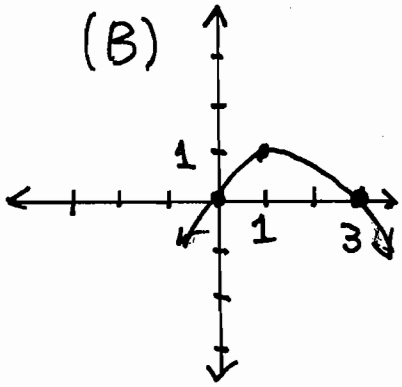
(D) $[0, 1]$

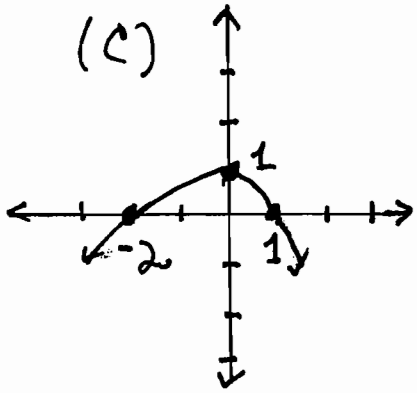
(E) $[-1, 1]$

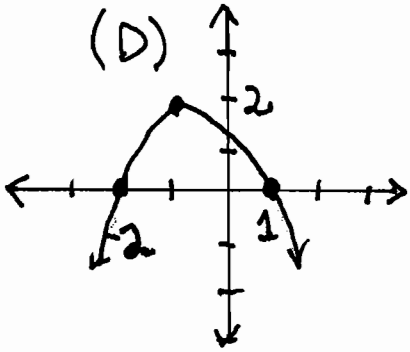
7. If $f(x)$ is as sketched, which graph represents the graph of $2f(x+1)$?

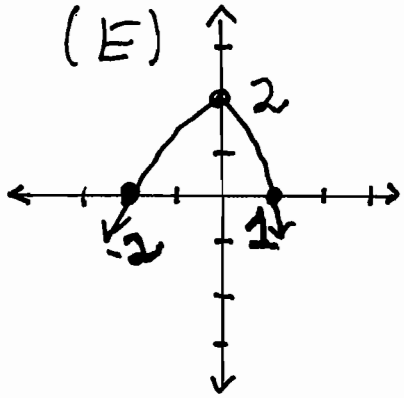












8. Find the domain for $f(x) = \sqrt{x^2 - 3x + 2}$.

(A) $[1, 2]$

(B) $(1, 2)$

(C) $(-\infty, 1] \cup [2, \infty)$

(D) $(-\infty, 1) \cup (2, \infty)$

(E) $\mathbb{R}$

9. $\cos(\sin^{-1} x)$ equals

(A) $\sqrt{x^2 - 1}$

(B) $\sqrt{1 - x^2}$

(C) $\dfrac{x}{\sqrt{x^2 - 1}}$

(D) $\dfrac{x}{\sqrt{x^2 - 1}}$

(E) $\dfrac{\sqrt{1 - x^2}}{x}$

10. If f and g are continuous with $f(2) = 4$ and $\lim\limits_{x \to 2} \left(\dfrac{g(x)}{f(x) + 2} \right) = 3$ then $g(2)$ equals

(A) 18

(B) 9

(C) 4

(D) 8

(E) 2