

1. Given the function $f(x) = 3x^2 - 5x + 2$, what is the value of $f(-2)$?

A. 12

B. 16

C. 20

D. 24

E. 28

$$f(-2) = 3(-2)^2 - 5(-2) + 2 = 24$$

use calculator

2. A gym charges a one-time enrollment fee of \$50 plus \$30 per month. Which of the following functions represents the total cost, $C(m)$, in dollars, for m months of membership?

F. $C(m) = 30m + 50$ ✓

G. $C(m) = 50m + 30$ ✗

H. $C(m) = 80m$ ✗

J. $C(m) = 30(m + 50)$ ✗

K. $C(m) = (30 + 50)m$ ✗

one time fee

50.....

+

Recurring

30m

} 50 + 30m

Sliding

! →

⊖

3. The graph of the function $y = f(x)$ is translated 4 units to the right and 3 units down to form the graph of a new function $g(x)$. Which of the following equations defines $g(x)$?

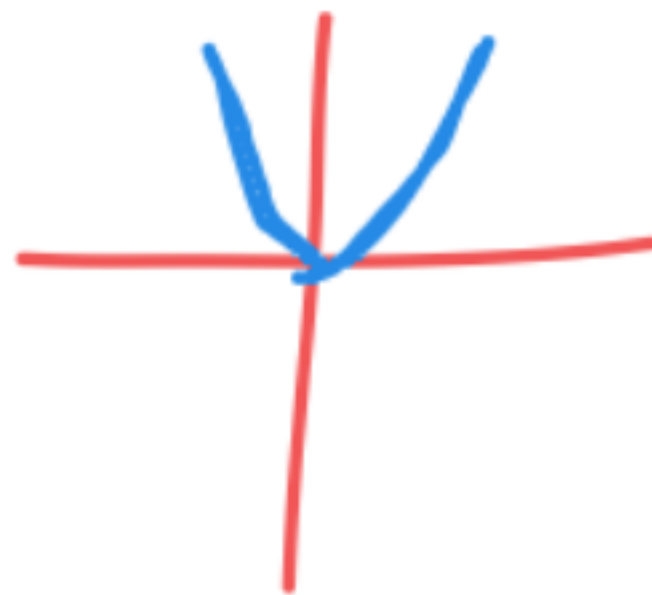
A. $g(x) = f(x - 4) - 3$ ✓

B. $g(x) = f(x + 4) - 3$

C. $g(x) = f(x - 4) + 3$

D. $g(x) = f(x + 4) + 3$

E. $g(x) = f(x) - 4 - 3$



6. If $f(x) = 4x - 7$, what is the inverse function $f^{-1}(x)$?

⊙ Switch 'x' and 'y'

F. $\frac{x+7}{4}$ ✓

G. $\frac{x-7}{4}$

H. $\frac{4}{x+7}$

J. $7x - 4$

K. $4x + 7$

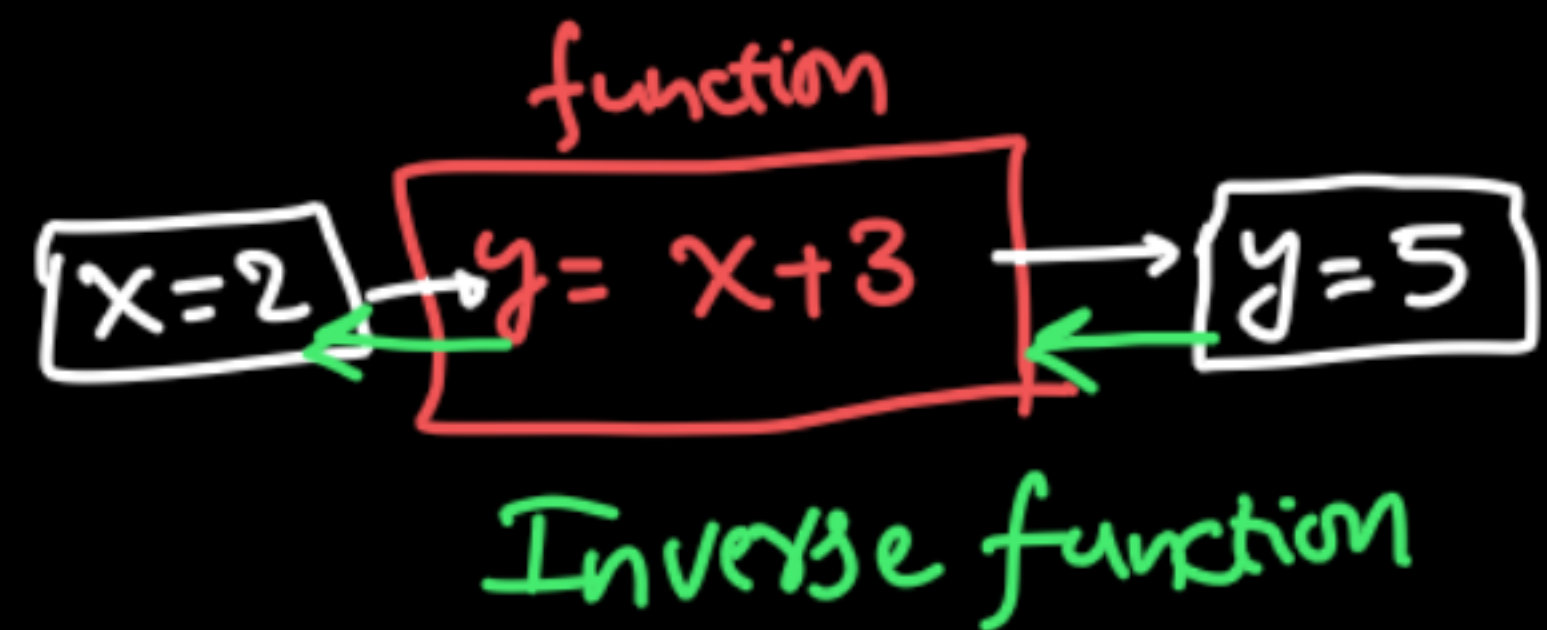
$$y = 4x - 7$$

$$x = 4y - 7$$

$$+7 \quad +7$$

$$\frac{x+7}{4} = \frac{4y}{4}$$

$$\frac{x+7}{4} = y$$



7. Let $f(x) = x^2 + 1$ and $g(x) = 2x - 3$. What is the value of $f(g(2))$?

A. 2

B. 5

C. 10

D. 17

E. 26

$$g(2) = 2(2) - 3 \\ = 1$$

$$f(x) = x^2 + 1 \\ f(1) = 1^2 + 1 \\ = 2$$

$$f[g(2)] \\ f[1]$$

8. A car depreciates in value by 15% each year. If the initial cost of the car is \$24,000, which expression represents its value after t years?

F. $24000(0.15)^t$

G. $24000(0.85)^t$

H. $24000(1.15)^t$

J. $24000 - 0.15t$

K. $24000(1 - 0.15t)$

$$\begin{aligned}\text{Final Value} &= \text{Initial Value} (1 \pm \text{Rate}\%)^{\text{Time}} \\ &= 24000 \left(1 - \frac{15}{100}\right)^t \\ &= 24000 (0.85)^t\end{aligned}$$

9. The height h (in feet) of a projectile above the ground after t seconds is modeled by $h(t) = -16t^2 + 64t + 80$. What is the maximum height reached?

- A. 64 feet
- B. 128 feet
- C. 144 feet
- D. 160 feet
- E. 208 feet

10. Consider the piecewise function: $f(x) = 2x + 1$ for $x < 3$, and $f(x) = x^2 - 2$ for $x \geq 3$. What is the value of $f(3) + f(1)$?

F. 8

G. 10

H. 12

J. 15

K. 18