

**Topic:** Quadratic polynomials**Question:** Factor the quadratic.

$$x^2 - x - 42$$

**Answer choices:**

A  $(x + 6)(x - 7)$

B  $(x - 6)(x + 7)$

C  $(x + 6)(x + 7)$

D  $(x - 6)(x - 7)$



**Solution: A**

We're looking for a pair of factors of the constant term,  $-42$ , which sum to  $-1$ . The pairs of factors of  $-42$  are

 $-1$  and  $42$  $1$  and  $-42$  $-2$  and  $21$  $2$  and  $-21$  $-3$  and  $14$  $3$  and  $-14$  $-6$  and  $7$  $6$  and  $-7$ 

The only pair of factors that sum to  $-1$  is the pair  $6$  and  $-7$ . So the quadratic factors as

$$(x + 6)(x - 7)$$



**Topic:** Quadratic polynomials**Question:** Factor the quadratic.

$$x^2 - 4x - 21$$

**Answer choices:**

A  $(x + 21)(x - 1)$

B  $(x + 3)(x - 7)$

C  $(x + 7)(x - 3)$

D  $(x - 21)(x + 1)$



**Solution: B**

We're looking for a pair of factors of the constant term,  $-21$ , which sum to  $-4$ . The pairs of factors of  $-21$  are

$-1$  and  $21$

$1$  and  $-21$

$-3$  and  $7$

$3$  and  $-7$

The only pair of factors that sum to  $-4$  is the pair  $3$  and  $-7$ . So the quadratic factors as

$$(x + 3)(x - 7)$$



**Topic:** Quadratic polynomials**Question:** Factor the quadratic.

$$t^2 + t - 20$$

**Answer choices:**

A  $(t - 2)(t + 10)$

B  $(t - 5)(t + 4)$

C  $(t + 2)(t - 10)$

D  $(t - 4)(t + 5)$



**Solution: D**

We're looking for a pair of factors of the constant term,  $-20$ , which sum to

1. The pairs of factors of  $-20$  are

$-1$  and  $20$

$1$  and  $-20$

$-2$  and  $10$

$2$  and  $-10$

$-4$  and  $5$

$4$  and  $-5$

The only pair of factors that sum to 1 is the pair  $-4$  and  $5$ . So the quadratic factors as

$$(t - 4)(t + 5)$$

