Topic: Difference of squares

Question: Factor the binomial.

$$x^2 - 4$$

Answer choices:

A $x + 2$

B $(x + 2)(x - 2)$

C $(x + 2)(x + 2)$

D $(x - 2)(x - 2)$

Solution: B

The binomial is the difference of squares, because

$$x^2 = (x)^2$$

$$4 = (2)^2$$

So the difference of squares can be factored as

$$x^2 - 4$$

$$(x + 2)(x - 2)$$

Topic: Difference of squares

Question: Factor the binomial.

$$81x^2y^2 - 16t^6$$

Answer choices:

A $(9xy + 4t^3)(9xy + 4t^3)$

B $(9xy + 4t^2)(9xy - 4t^4)$

C $(9xy + 4t^3)(9xy - 4t^3)$

D $(9xy + 4t^2)(9xy - 4t^2)$

Solution: C

The binomial is the difference of squares, because

$$81x^2y^2 = (9xy)^2$$

$$16t^6 = (4t^3)^2$$

So the difference of squares can be factored as

$$81x^2y^2 - 16t^6$$

$$(9xy + 4t^3)(9xy - 4t^3)$$

Topic: Difference of squares

Question: Factor the binomial.

$$25r^4z^2 - 225a^4b^{10}$$

Answer choices:

A $(5r^2z + 15a^2b^5)(5r^2z - 15a^2b^5)$

B $(5r^2z - 25a^2b^5)(5r^2z - 25a^2b^5)$

C $(5r^2z + 15a^3b^2)(5r^2z - 15a^1b^5)$

D $(5r^2z + 25a^2b^5)(5r^2z - 25a^2b^5)$

Solution: A

The binomial is the difference of squares, because

$$25r^4z^2 = (5r^2z)^2$$

$$225a^4b^{10} = (15a^2b^5)^2$$

So the difference of squares can be factored as

$$25r^4z^2 - 225a^4b^{10}$$

$$(5r^2z + 15a^2b^5)(5r^2z - 15a^2b^5)$$