



Use the remainder theorem

1

Find the remainder when $f(x)$ is divided by $(x + 1)$.

$$f(x) = x^5 + x^4 - 7x^3 - x^2 + 6x$$

A

0

B

-1

2

Is $(x + 2)$ a factor of $f(x)$?

$$f(x) = x^4 + 10x^3 + 37x^2 + 60x + 36$$

A

Yes

B

No

3

Which calculation determines whether $(x - 3)$ is a factor of $f(x)$?

$$f(x) = x^5 + 2x^4 - 6x^3 - 8x^2 + 5x + 6$$

A

$$f(0) = -3$$

B

$$f(0) = 3$$

C

$$f(-3) = 0$$

D

$$f(3) = 0$$

4

Use synthetic division to divide this polynomial by this binomial. What is the result?

$$\frac{x^3 - 8x^2 + 21x - 18}{(x + 4)}$$

A

$$x^2 - 12x + 69 + \frac{294}{(x + 4)}$$

B

$$x^3 - 12x^2 + 69x - 294$$

C

$$2x^2 - 12x + 69 - \frac{294}{(x + 4)}$$

D

$$x^2 - 12x + 69 - \frac{294}{(x + 4)}$$

5

Use synthetic division to divide this polynomial by this binomial. Is the binomial a factor?

$$\frac{x^4 + 10x^3 + 37x^2 + 60x + 36}{(x - 2)}$$

A

Yes

B

No

6

Find the remainder when $f(x)$ is divided by $(x + 2)$.

$$f(x) = x^4 + 2x^3 - 3x^2$$

A

20

B

-12

C

12

D

0

7

Is $(x + 1)$ a factor of $f(x)$?

$$f(x) = x^4 - 2x^3 - 7x^2 + 8x + 12$$

A

Yes

B

No



Use the remainder theorem

8

Which calculation determines whether $(x + 1)$ is a factor of $f(x)$?

$$f(x) = x^5 - 2x^4 - 13x^3 + 26x^2 + 36x - 72$$

A

$f(0) = -1$

B

$f(1) = 0$

C

$f(-1) = 0$

D

$f(0) = 1$

10

Use synthetic division to divide this polynomial by this binomial. Is the binomial a factor?

$$\frac{x^5 + 2x^4 - 8x^3}{(x - 0)}$$

A

No

B

Yes

11

Find the remainder when $f(x)$ is divided by $(x - 2)$.

$$f(x) = x^4 + 5x^3 + 2x^2 - 20x - 24$$

A

-24

B

2

C

0

9

Use synthetic division to divide this polynomial by this binomial. What is the result?

$$\frac{x^5 - 5x^4 - 6x^3 + 44x^2 + 8x - 96}{(x + 1)}$$

A

$$x^5 - 6x^4 + 44x^2 - 36x - 60$$

B

$$2x^4 - 6x^3 + 44x - 36 - \frac{60}{(x + 1)}$$

C

$$x^4 - 6x^3 + 44x - 36 + \frac{60}{(x + 1)}$$

D

$$x^4 - 6x^3 + 44x - 36 - \frac{60}{(x + 1)}$$

12

Is $(x + 1)$ a factor of $f(x)$?

$$f(x) = x^5 - 3x^3 - 2x^2$$

A

No

B

Yes