

Formula for Delta y

Find Delta y = $f(x + \Delta x) - f(x)$.

1. $f(x) = 4\sin(-6x+3)$

2. $f(x) = (x^2+1)/(x-2)$

3. $f(x) = (x^2-6x)/(2x^2-12x+18)$

4. $f(x) = -2\cos(3x-12)$

5. $f(x) = 1(3x^2+1)^5$

6. $f(x) = 1(-x^3-x)^{-3}$

Formula for Delta y

Find $\Delta y = f(x + \Delta x) - f(x)$.

7. $f(x) = (1/2)/(x^2-4x+4)+(-3)/(x^2)$

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

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

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

Formula for Delta y

Answer Key

Find Delta y = $f(x + \Delta x) - f(x)$.

1. $f(x) = 4\sin(-6x+3)$

$$\Delta y = f(x + \Delta x) - f(x)$$

Substitute the complete incremented input.

$$\Delta y = 4\sin(-6(x + \Delta x)+3) - (4\sin(-6x+3))$$

2. $f(x) = (x^2+1)/(x-2)$

$$\Delta y = f(x + \Delta x) - f(x)$$

Substitute the complete incremented input.

$$\Delta y = ((x + \Delta x)^2+1)/((x + \Delta x)-2) - ((x^2+1)/(x-2))$$

$$x-2 \neq 0$$

$$(x + \Delta x)-2 \neq 0$$

3. $f(x) = (x^2-6x)/(2x^2-12x+18)$

$$\Delta y = f(x + \Delta x) - f(x)$$

Substitute the complete incremented input.

$$\Delta y = ((x + \Delta x)^2-6(x + \Delta x))/(2(x + \Delta x)^2-12(x + \Delta x)+18) - ((x^2-6x)/(2x^2-12x+18))$$

$$2x^2-12x+18 \neq 0$$

$$2(x + \Delta x)^2-12(x + \Delta x)+18 \neq 0$$

Formula for Delta y

Answer Key

Find Delta y = $f(x + \Delta x) - f(x)$.

4. $f(x) = -2\cos(3x-12)$

$$\Delta y = f(x + \Delta x) - f(x)$$

Substitute the complete incremented input.

$$\Delta y = -2\cos(3(x + \Delta x)-12) - (-2\cos(3x-12))$$

5. $f(x) = 1(3x^2+1)^5$

$$\Delta y = f(x + \Delta x) - f(x)$$

Substitute the complete incremented input.

$$\Delta y = 1(3(x + \Delta x)^2+1)^5 - (1(3x^2+1)^5)$$

6. $f(x) = 1(-x^3-x)^{-3}$

$$\Delta y = f(x + \Delta x) - f(x)$$

Substitute the complete incremented input.

$$\Delta y = 1(-(x + \Delta x)^3-(x + \Delta x))^{-3} - (1(-x^3-x)^{-3})$$

$$-x^3-x \neq 0$$

$$-(x + \Delta x)^3-(x + \Delta x) \neq 0$$

Formula for Delta y

Answer Key

Find $\Delta y = f(x + \Delta x) - f(x)$.

7. $f(x) = (1/2)/(x^2-4x+4)+(-3)/(x^2)$

$$\Delta y = f(x + \Delta x) - f(x)$$

Substitute the complete incremented input.

$$\Delta y = (1/2)/((x + \Delta x)^2-4(x + \Delta x)+4)+(-3)/((x + \Delta x)^2) - ((1/2)/(x^2-4x+4)+(-3)/(x^2))$$

$$x^2-4x+4 \neq 0$$

$$x^2 \neq 0$$

$$(x + \Delta x)^2-4(x + \Delta x)+4 \neq 0$$

$$(x + \Delta x)^2 \neq 0$$

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

$$\Delta y = f(x + \Delta x) - f(x)$$

Substitute the complete incremented input.

$$\Delta y = 2(x + \Delta x)^3-(x + \Delta x)+4 - (2x^3-x+4)$$

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

$$\Delta y = f(x + \Delta x) - f(x)$$

Substitute the complete incremented input.

$$\Delta y = (x + \Delta x)^4-2(x + \Delta x)^2+3 - (x^4-2x^2+3)$$

Formula for Delta y

Answer Key

Find $\Delta y = f(x + \Delta x) - f(x)$.

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

$$\Delta y = f(x + \Delta x) - f(x)$$

Substitute the complete incremented input.

$$\Delta y = -(x + \Delta x)^2 - 3(x + \Delta x) - 5 - (-x^2 - 3x - 5)$$