

$$2x^2 - 9x - 35 = A(x-2) + B(x-7) + C(x-5)$$

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$$2x^2 - 9x - 35 = A(x-2) + B(x-7) + C(x-5)$$

$$11 = 10C$$

$$2x^2 - 9x - 35 = A(x-2) + B(x-7) + C(x-5)$$

$$8 - 18 - 35 = A(6-2) + B(14-7) + C(10-5)$$

$$-45 = 4A + 7B + 5C$$

$$2x^2 - 9x - 35 = A(x-2) + B(x-7) + C(x-5)$$

$$2 + 19 - 35 = A(4-2) + B(14-7) + C(10-5)$$

$$-14 = 2A + 7B + 5C$$

$$2x^2 - 9x - 35 = A(x-2) + B(x-7) + C(x-5)$$

$$2x^2 - 9x - 35 = A(x-2) + B(x-7) + C(x-5)$$

$$= 4 \left(\frac{1}{x-2} \right) + 3 \left(\frac{1}{x-7} \right) - 3 \left(\frac{1}{x-5} \right) + \frac{11}{x-3}$$

$$\int \frac{11-3x}{x^2+2x-3} dx$$

$$\frac{11-3x}{(x-1)(x+3)} = \frac{A}{x-1} + \frac{B}{x+3}$$

$$\frac{11-3x}{(x-1)(x+3)} = \frac{A(x+3) + B(x-1)}{(x-1)(x+3)}$$

$$11-3x = A(x+3) + B(x-1)$$

when $x = -3$

$$11-3(-3) = B(-3-1)$$

$$20 = -4B$$

$$-5 = B$$

when $x = 1$

$$11-3(1) = A(1+3)$$

$$8 = 4A$$

$$2 = A$$

$$2 = A$$

$$\begin{aligned} \int \frac{11-3x}{(x-1)(x+3)} &= \int \frac{2}{x-1} + \int \frac{-5}{x+3} \\ &= 2 \int \frac{1}{x-1} + -5 \int \frac{1}{x+3} \\ &= 2 \ln|x-1| - 5 \ln|x+3| \end{aligned}$$

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$$\frac{2x^2 - 9x - 35}{(x+1)(x-2)(x+3)}$$

$$\frac{2x^2 - 9x - 35}{(x+1)(x-2)(x+3)} = \frac{A}{x+1} + \frac{B}{x-2} + \frac{C}{x+3}$$

$$2x^2 - 9x - 35 = A(x-2)(x+3) + B(x+1)(x+3) + C(x+1)(x-2)$$

Let $x = -3$

$$2(-3)^2 - 9(-3) - 35 = A(-3-2)(-3+3) + B(-3+1)(-3+3) + C(-3+1)(-3-2)$$

$$10 = 10C$$

$$+1 = C$$

$$2x^2 - 9x + 35 = A(x-2)(x+3) + B(x+1)(x+3) + C(x+1)(x-2)$$

Let $x = 2$

$$2(2)^2 - 9(2) - 35 = A(2-2)(2+3) + B(2+1)(2+3) + C(2+1)(2-2)$$

$$8 - 18 - 35 = B(3)(5)$$

$$-45 = 15B$$

$$-3 = B$$

$$2x^2 - 9x - 35 = A(x-2)(x+3) + B(x+1)(x+3) + C(x+1)(x-2)$$

Let $x = -1$

$$2(-1)^2 - 9(-1) - 35 = A(-1-2)(-1+3) + B(-1+1)(-1+3) + C(-1+1)(-1-2)$$

$$2 + 9 - 35 = A(-3)(2)$$

$$-24 = -6A$$

$$4 = A$$

$$\frac{2x^2 - 9x - 35}{(x+1)(x-2)(x+3)} = \frac{4}{x+1} - \frac{3}{x-2} + \frac{1}{x+3}$$

$$\frac{2x^2 - 9x - 35}{(x+1)(x-2)(x+3)} = \frac{4}{x+1} + \frac{-3}{x-2} + \frac{1}{x+3}$$

$$= 4 \left(\frac{1}{x+1} \right) + 3 \left(\frac{1}{x-2} \right) + \frac{1}{x+3}$$