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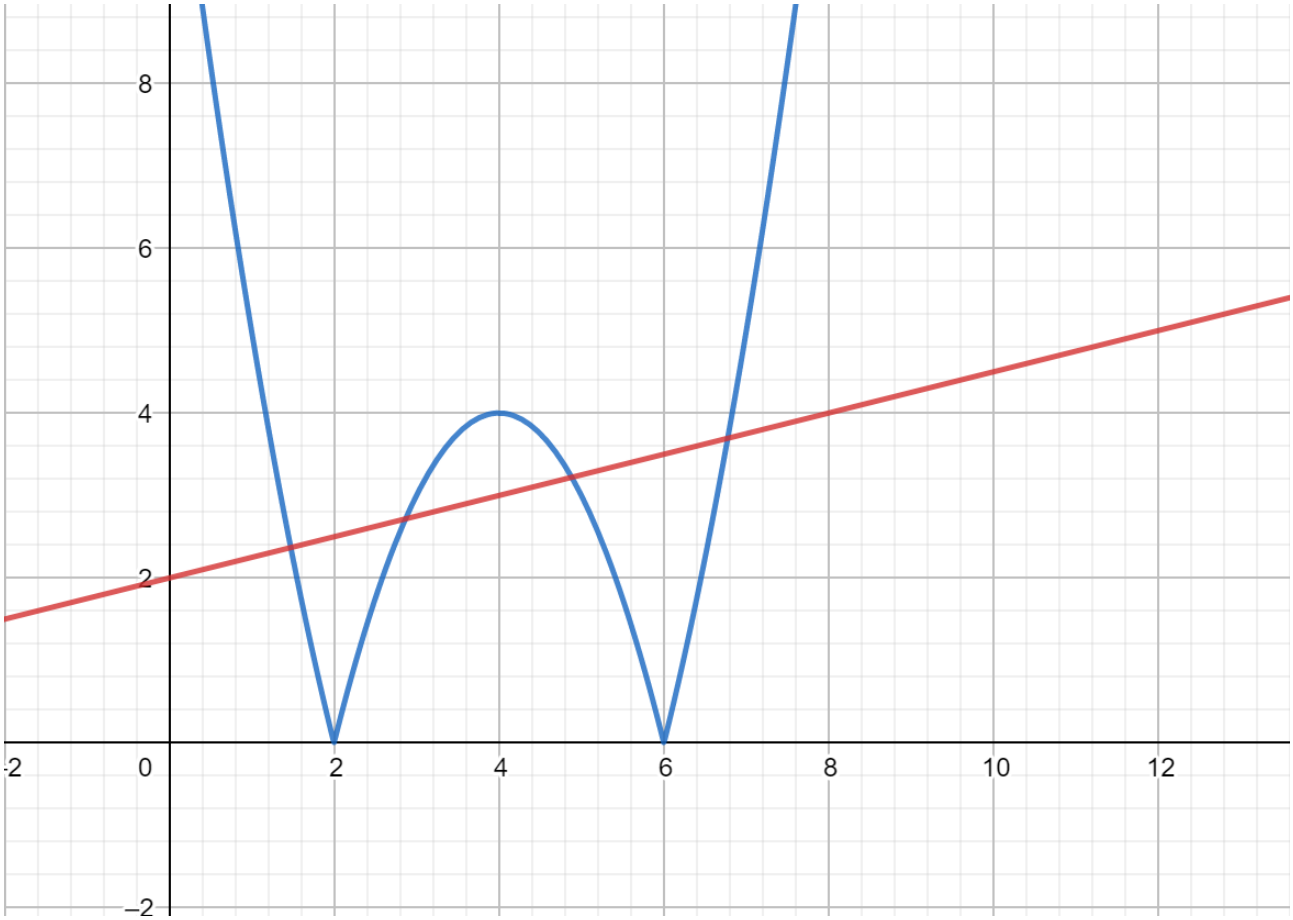
Opgave 258



$$f(x) = \begin{cases} x^2 - 8x + 12 & if\ x \leq 2 \\ -x^2 + 8x - 12 & if\ 6 > x > 2 \\ x^2 - 8x + 12 & if x \geq 6 \end{cases}$$

$$|x^2 - 8x + 12| = 0.25x + 2$$

Del formlen ind i to muligeheder

$$x^2 - 8x + 12 = 0.25x + 2$$
$$-x^2 + 8x - 12 = 0.25 + 2$$

Første mulighed

$$x^2 - 8x + 12 = 0.25x + 2$$
$$x^2 - 8x + 12 - 0.25x - 2 = 0 \quad Ryk\ alt\ til\ venstre$$
$$x^2 - 8.25x + 10 = 0 \quad Reducer$$

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Find koefficenter

$$a = 1$$
$$b = -8.25$$
$$c = 10$$

Find diskriminanentnen

$$D = b^2 - 4ac$$
$$D = (-8.25)^2 - 4 \cdot 1 \cdot 10 \quad Indsæt\ tal$$
$$D = 28{,}0625 \quad Udreng$$

$$x_{1,2} = \frac{-b \pm \sqrt{D}}{2a}$$
$$x_{1,2} = \frac{-(-8.25) \pm \sqrt{28.1}}{2 \cdot 1} \quad Indsæt\ tal$$

Adskil til to formler

$$x_1 = \frac{-(-8.25) + \sqrt{28.1}}{2 \cdot 1}$$
$$x_1 = 6{,}775472 \quad Udregn$$

$$x_2 = \frac{-(-8.25) - \sqrt{28.1}}{2 \cdot 1}$$
$$x_2 = 1{,}474528 \quad Udregn$$

Anden mulighed

$$-x^2 + 8x - 12 = 0.25x + 2$$
$$-x^2 + 8x - 12 - 0.25x - 2 = 0 \quad Alt\ til\ venstre$$
$$-x^2 + 7.75x - 14 = 0 \quad Reducer$$

Koeficienter

$$a = -1$$
$$b = 7.75$$
$$c = -14$$

Find diskriminaten

$$D = b^2 - 4ac$$
$$D = 7.75^2 - 4 \cdot (-1) \cdot (-14) \quad Indsæt\ tal$$
$$D = 4{,}0625 \quad Udregn$$

$$x_{1,2} = \frac{-b \pm \sqrt{D}}{2a}$$
$$x_{1,2} = \frac{-7.75 \pm \sqrt{4.1}}{2 \cdot (-1)} \qquad Indsæt\ tal$$

Adskil til to regnestykker

$$x_1 = \frac{-7.75 + \sqrt{4.1}}{2 \cdot (-1)}$$
$$x_1 = 2{,}862577 \qquad Udregn$$

$$x_2 = \frac{-7.75 - \sqrt{4.1}}{2 \cdot (-1)}$$
$$x_2 = 4{,}887423 \qquad Udregn$$