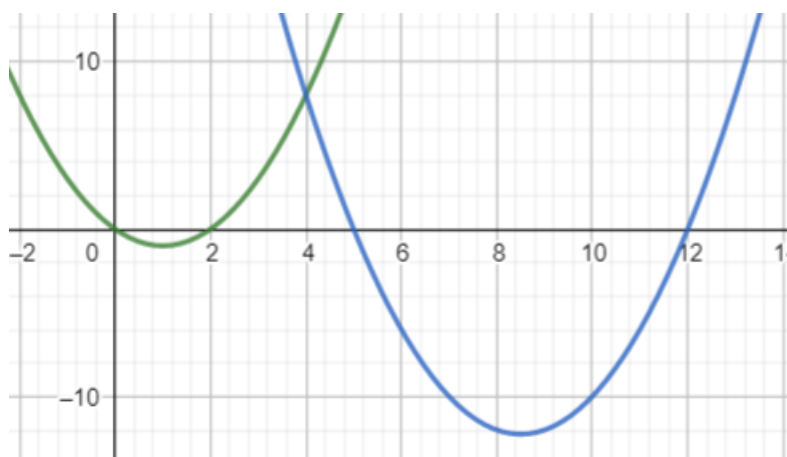


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## Opgave 376

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

$$g(x) = x^2 - 17x + 60$$



Find skærings punkter

$$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Skæring med x-aksen

$$f(x)$$

$$a_f = 1$$

$$b_f = -2$$

$$c_f = 0$$

$$a = \frac{-(-2) + \sqrt{(-2)^2 - 4 \cdot 1 \cdot 0}}{2 \cdot 1}$$

$$a = 2$$

$$g(x)$$

$$a_g = 1$$

$$b_g = -17$$

$$c_g = 60$$

$$c = \frac{-(-17) - \sqrt{(-17)^2 - 4 \cdot 1 \cdot 60}}{2 \cdot 1}$$

$$c = 5$$

Skæring mellem g og f

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$$\begin{aligned}
 f(x) &= g(x) \\
 x^2 - 2x &= x^2 - 17x + 60 \\
 x^2 - x^2 - 2x + 17x &= 60 \\
 15x &= 60 \\
 x &= \frac{60}{15} \\
 b = x &= 4
 \end{aligned}$$

Find areal

$$\begin{aligned}
 F(x) &= \int f(x) \, dx \\
 \text{Define: } F(x) &= \frac{1}{3}x^3 - x^2 \\
 G(x) &= \int g(x) \, dx \\
 \text{Define: } G(x) &= \frac{1}{3}x^3 - \frac{17}{2}x^2 + 60x \\
 A_f &= [F(x)]_a^b \\
 A_f &= F(4) - F(2) \\
 A_f &= 6,666667 \\
 A_g &= [G(x)]_b^c \\
 A_g &= G(5) - G(4) \\
 A_g &= 3,833333 \\
 A &= A_f + A_g \\
 A &= 6.666 + 3.833 \\
 A &= 10.5
 \end{aligned}$$