

# Eindexamen wiskunde B1-2 havo 2005-II

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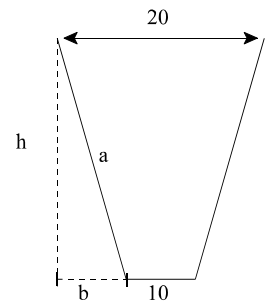
## Krantenbakken

$$7. \quad a = \frac{90 - 10}{2} = 40$$

$$b = \frac{20 - 10}{2} = 5$$

$$h^2 + b^2 = a^2 \quad \text{dus} \quad h^2 + 5^2 = 40^2 \quad \rightarrow \quad h = \sqrt{40^2 - 5^2} = 39,7$$

De hoogte is 39,7 cm

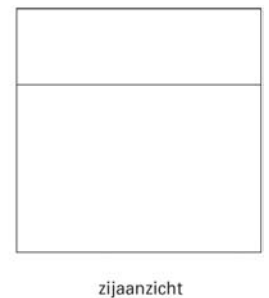
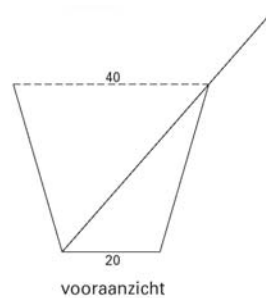


8.

9. Zie figuur uitwerking 7.

$$b = \frac{2x - x}{2} = \frac{1}{2}x$$

$$a = \frac{90 - x}{2} = 45 - \frac{1}{2}x$$



$$h = \sqrt{(45 - \frac{1}{2}x)^2 - (\frac{1}{2}x)^2} = \sqrt{2025 - 45x + \frac{1}{4}x^2 - \frac{1}{4}x^2} = \sqrt{2025 - 45x}$$

$$10. \quad \frac{dI}{dx} = 0,075 \cdot \sqrt{2025 - 45x} - \frac{45 \cdot 0,075 \cdot x}{2 \cdot \sqrt{2025 - 45x}} = 0$$

$$\frac{2 \cdot 0,075 \cdot (2025 - 45x) - 45 \cdot 0,075 \cdot x}{2 \cdot \sqrt{2025 - 45x}} = 0$$

$$303,75 - 6,75 \cdot x - 3,375 \cdot x = 0 \quad \text{én} \quad 2025 \neq 45 \cdot x$$

$$\rightarrow x = \frac{303,75}{10,125} = 30$$

$$\rightarrow h = \sqrt{2025 - 45 \cdot 30} = 26$$

Of met de GR:

$$\text{Plot } y_1 = 0,075x \cdot \sqrt{2025 - 45x} \quad \text{maximum}[0, 35] = 30,0 \quad \rightarrow \quad h = 26$$

$$11. \quad h = \sqrt{2025 - 45x} \geq 20 \quad \rightarrow \quad 2025 - 45x \geq 400$$

$$\rightarrow x \leq \frac{2025 - 400}{45} = 36,1$$

$$\text{En met de GR:} \quad I = 0,075x \cdot \sqrt{2025 - 45x} \geq 30$$

$$y_1 = 0,075x \cdot \sqrt{2025 - 45x} \quad y_2 = 30$$

$$\text{Intersect} \quad x = 10,1 \quad \text{of} \quad x = 43,1$$

$$\rightarrow 10,1 \leq x \leq 43,1$$

Dus:  $10,1 \leq x \leq 36,1$

Mogelijk zijn breedtes van 10,1 tot en met 36,1 cm