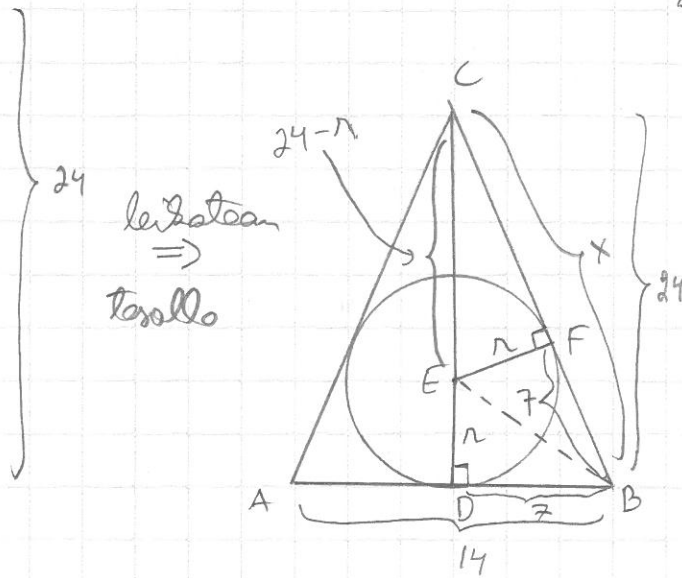
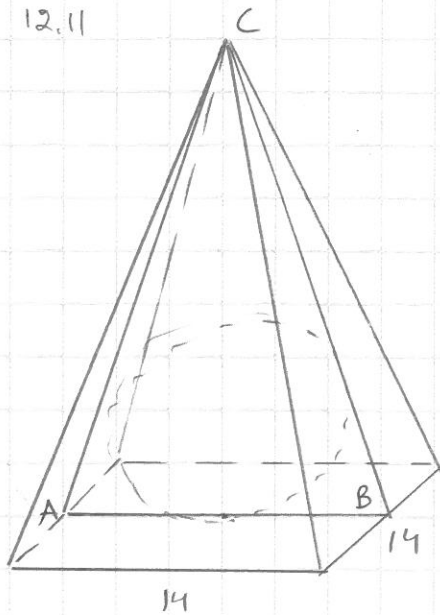


12.11



$$\triangle BCD \sim \triangle CEF \quad (82)$$

1° mol. mää. kulu

2° 4 Cyhtäminen

Pythagoras:

$$x^2 = 7^2 + 24^2 \quad | \sqrt{}$$

$$\Rightarrow x = 25$$

$$\frac{7}{25} = \frac{r}{24-r} \quad | \times$$

$$\Rightarrow 25r = 7(24-r)$$

$$\Rightarrow 25r = 168 - 7r \quad \Rightarrow 32r = 168 \quad | :32$$

$$\Rightarrow r = \frac{21}{4}$$

TA1: $BF = 7$ (symmetria) $\Rightarrow FC = 25 - 7 = 18$

$$\text{Pythagoras: } r^2 + 18^2 = (24-r)^2$$

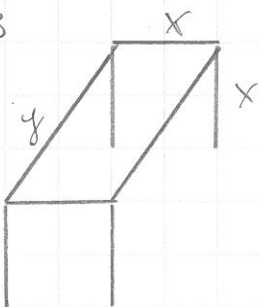
$$\Rightarrow r^2 + 18^2 = 24^2 - 2 \cdot 24 \cdot r + r^2$$

$$\Rightarrow r = \frac{24^2 - 18^2}{2 \cdot 24} = \frac{21}{4}$$

$$\text{TA1: mää. (8.24)} \quad r = \frac{2A}{a+b+c} = \frac{2 \cdot \frac{1}{2} \cdot 14 \cdot 24}{14 + 25 + 25} = \frac{21}{4}$$

13, Täiäryösuorallisuus

13.3



$$\text{tilavuus: } V = x^2 y = 48 \quad | : x^2 \Rightarrow y = \frac{48}{x^2}$$

$$\text{rajatilantilat: } x = 0$$

$$y = \frac{48}{x^2} = 0 \quad \downarrow$$

Putkee kulum:

$$f(x) = 6x + 2y = 6x + 2 \cdot \frac{48}{x^2} = 6x + \frac{96}{x^2}$$

f on jatkuvasti derivoituva kun $x > 0$

$$\left[\frac{df}{dx} = \frac{f' \cdot g + f \cdot g'}{g^2} \right]$$

$$f'(x) = 6 + \frac{0 \cdot x^2 - 96 \cdot 2x}{(x^2)^2} = 6 - \frac{192}{x^3} = 0 \quad | \cdot x^3$$

$$\Rightarrow 6x^3 - 192 = 0 \quad \Rightarrow 6x^3 = 192 \quad | :6 \quad \Rightarrow x^3 = 32 \quad | \sqrt[3]{}$$