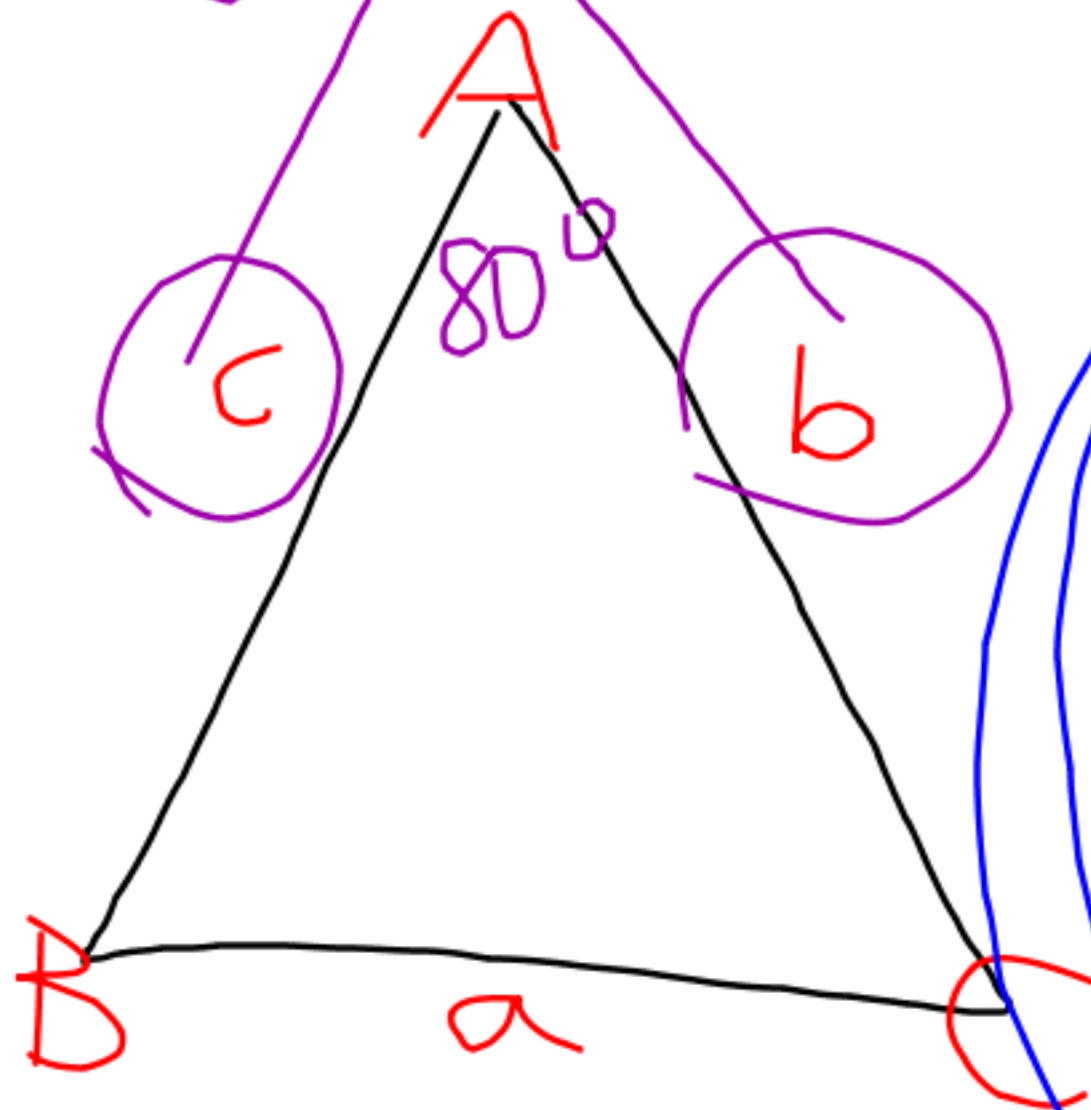


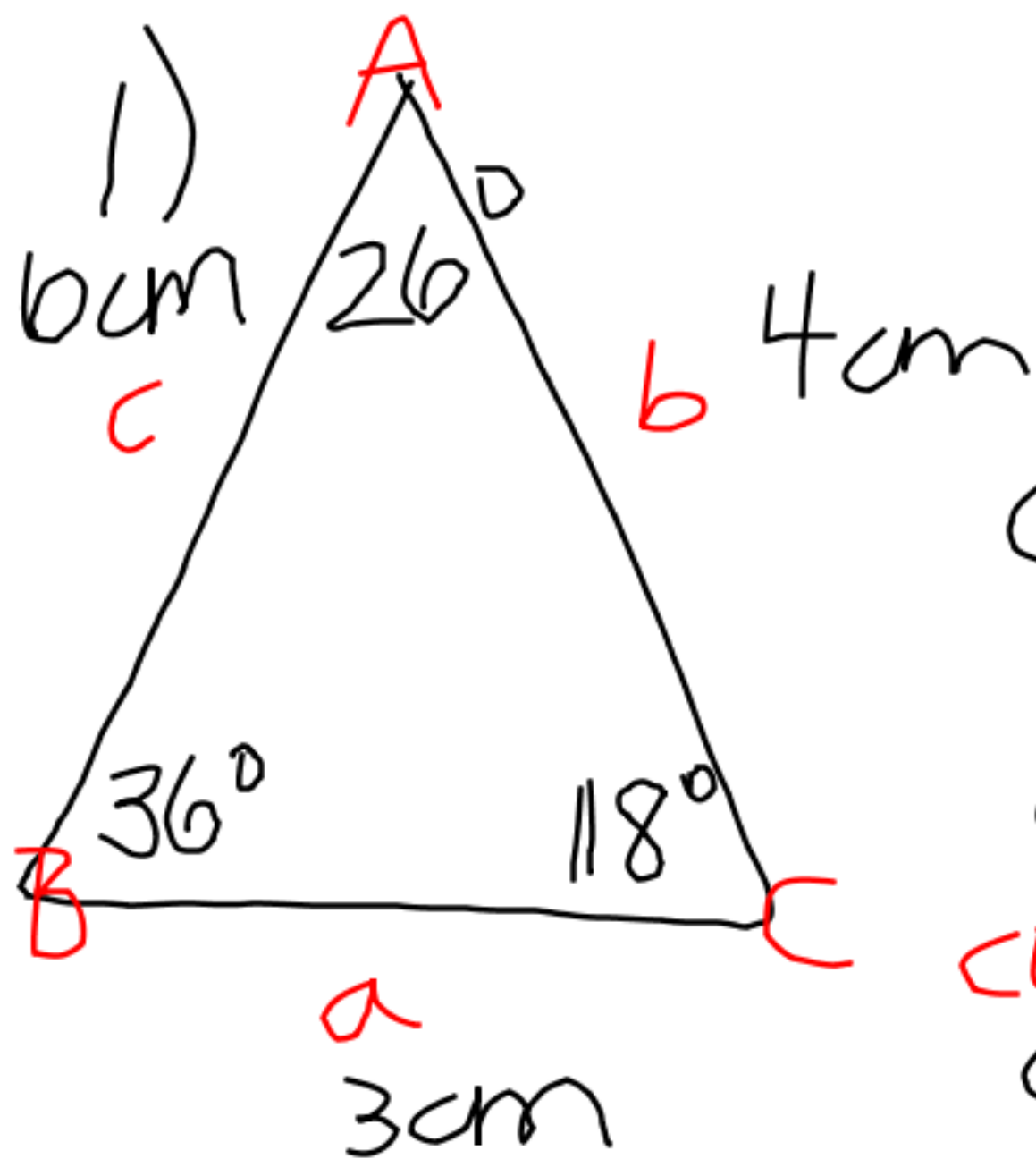
Sept. 27

Cosine Law



$\triangle SAS$

In order to solve
an angle using
cosine law, you
need all three sides
of the triangle



$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

$$\cos A = \frac{4^2 + 6^2 - 3^2}{(2 \times 4 \times 6)}$$

$$\cos A = \frac{48}{48}$$

$$\cos^{-1}(\cos A) = 0.8958$$

$$A = 26.38^\circ$$

$$\angle C = 180 - 26 - 36$$

$$\angle C = 118^\circ$$

$$\cos B = \frac{a^2 + c^2 - b^2}{2ac}$$

$$\cos B = \frac{3^2 + 6^2 - 4^2}{(2 \times 3 \times 6)}$$

$$\cos B = \frac{29}{36}$$

$$\cos^{-1}(\cos B) = 0.8055$$

$$\angle B = 36.34^\circ$$

$$\angle B = 36^\circ$$

$$\angle A = 26^\circ$$

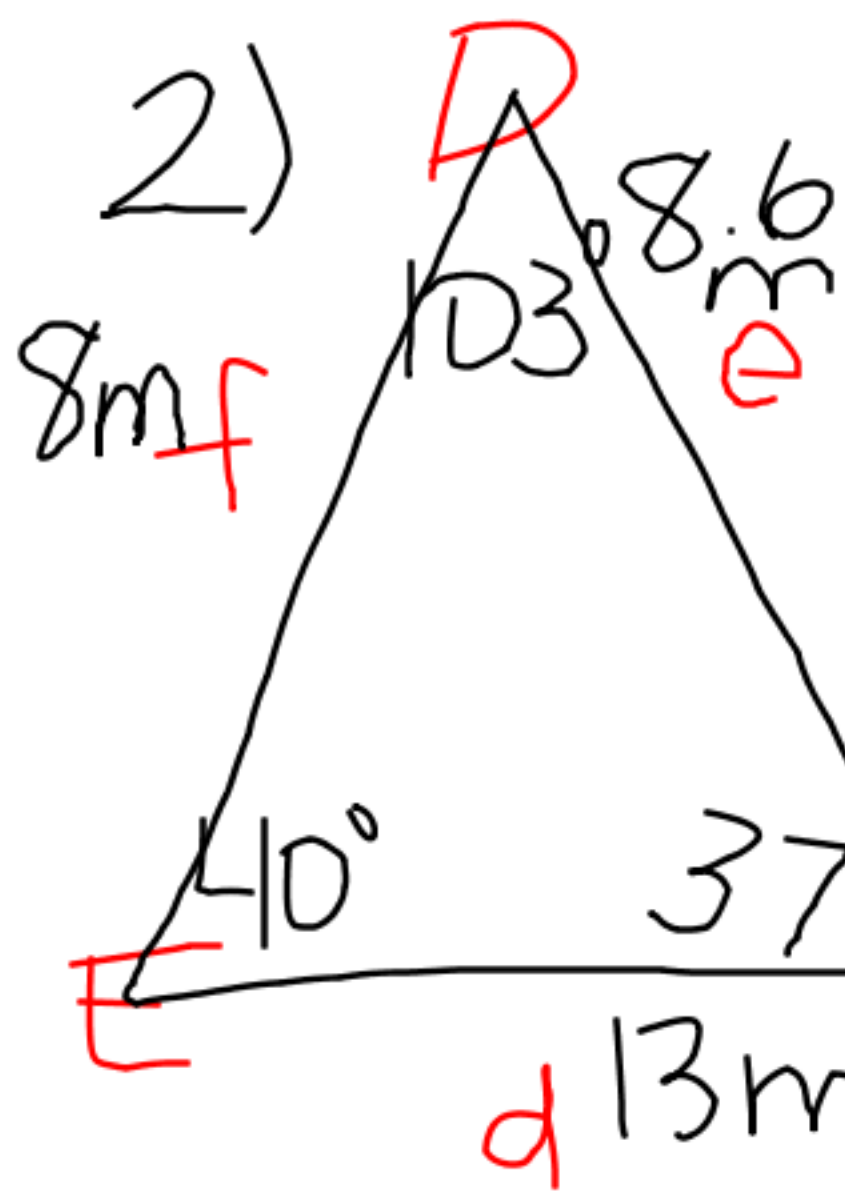
$$\angle B = 36^\circ$$

$$\angle C = 118^\circ$$

$$a = 3 \text{ cm}$$

$$b = 4 \text{ cm}$$

$$c = 6 \text{ cm}$$



$$e^2 = f^2 + d^2 - 2fd (\cos E)$$

$$e^2 = 8^2 + 13^2 - (2 \times 8 \times 13) (\cos 40^\circ)$$

$$e^2 = 8^2 + 13^2 - (208) (\cos 40^\circ)$$

$$e^2 = 8^2 + 13^2 - 159.3372$$

$$\sqrt{e^2} = \sqrt{73.6628}$$

$$e = 8.58$$

$$e = 8.6m$$

$$\cos D = \frac{e^2 + f^2 - d^2}{2ef}$$

$$\cos D = \frac{8.6^2 + 8^2 - 13^2}{(2 \times 8.6 \times 8)}$$

$$\cos D = \frac{-31.04}{137.6}$$

$$\cos^{-1} D = \cos^{-1} -0.2255$$

$$\angle D = 103^\circ$$

$$\angle F = 180 - 103 - 40$$

$$\angle F = 37^\circ$$