

Cosine Law

Finding all sides
and all angles

Times New Ro 12

A

A

Aa

abc

A

≡

≡

≡

≡

≡

≡

≡

AaBbCcI

AaBbCcI

AaBbCcI

AaBbCc

AaBbCc

Caption

Normal

No Spac...

Heading 1

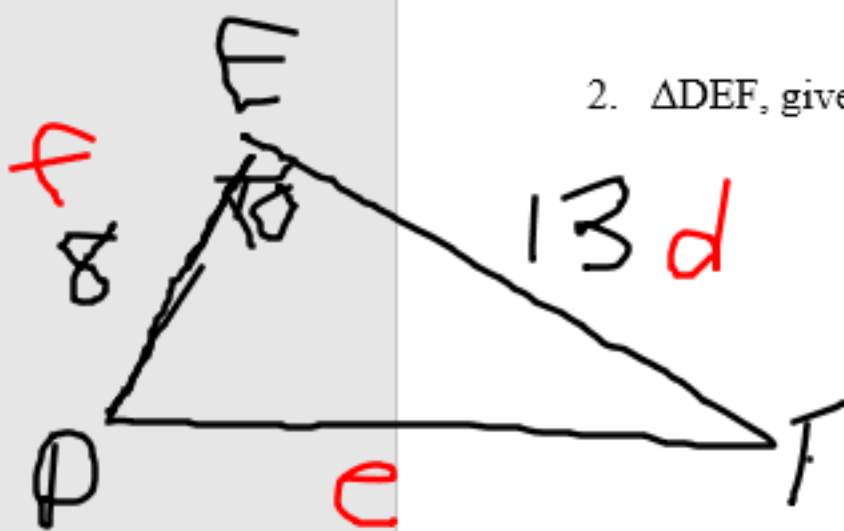
Title

Font

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2. $\triangle DEF$, given $d = 13$ m, $E = 40^\circ$ and $f = 8$ m.

$$\begin{aligned}\angle D &= 100^\circ \\ \angle E &= 40^\circ \\ \angle F &= 40^\circ\end{aligned}$$

$$\begin{aligned}d &= 13 \text{ m} \\ e &= 9 \text{ m} \\ f &= 8 \text{ m}\end{aligned}$$

$$e^2 = d^2 + f^2 - 2df \cos E$$

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

$$e^2 = 169 + 64 - (159.3)$$

$$\sqrt{e^2} = \sqrt{73.7}$$

$$e = 9$$

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

$$\cos D = \frac{9^2 + 8^2 - 13^2}{(2)(9)(8)}$$

$$\cos D = \frac{-24}{144}$$

$$\cos D = -0.167$$

$$D = 100^\circ$$

$$\angle F = 180 - 100 - 40$$

$$\angle F = 40^\circ$$