



First of all, note that  $20^2 + 21^2 = 29^2$ , so  $\triangle ABC$  is right with  $m\angle BAC = 90^\circ$ .

Next, note  $\overline{AC} \cong \overline{BC}$  so  $m\angle DAC = m\angle ADC$ .

Next, note  $\overline{AB} \cong \overline{EB}$  so  $m\angle EAB = m\angle AEB$ .

$\triangle APE$  is a triangle, so

$$m\angle DAE + m\angle ADC + m\angle AEB = 180^\circ. \quad (1)$$

We also know

$$m\angle DAC + m\angle EAB = m\angle BAC + m\angle DAE. \quad (2)$$

Let  $m\angle DAE = x$ ,  $m\angle DAC = m\angle ADC = y$ , and  $m\angle EAB = m\angle AEB = z$ .

From (1) and (2)

$$x + y + z = 180^\circ \quad (3)$$

$$y + z = 90^\circ + x \quad (4)$$