

Algebra II

SS-2

Word Problems

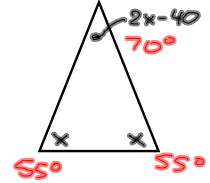
Solve. (pg 132)

2 = sides

- 3) Find the measures of the angles of an isosceles triangle if the measure of the vertex angle is 40° less than the sum of the measures of the base angles.

angles add up to 180°

$$\begin{aligned} x + x + (2x - 40) &= 180^\circ \\ 4x - 40 &= 180 \\ 4x &= 220 \\ x &= 55 \end{aligned}$$



- 13) Marcia flew her ultralight plane to a nearby town against a head wind of 15 km/hr in 2 h and 20 min. The return trip under the same wind conditions took 1 h and 24 min. Find the plane's air speed and the distance to the nearby town.

60 km/hr

105 km

$$r \times t = d$$

against wind	$x - 15$	$2\frac{1}{3} = \frac{7}{3}$	$\frac{7}{3}(x - 15)$
with wind	$x + 15$	$1\frac{2}{3} = \frac{5}{3}$	$\frac{5}{3}(x + 15)$

$$\begin{aligned} \frac{7}{3}(x - 15) &= \frac{5}{3}(x + 15) && \frac{7}{3}(60 + 15) \\ 15\left(\frac{7}{3}x - 35\right) &= \frac{5}{3}x + 21 && \boxed{105 \text{ km}} \\ 35x - 525 &= 21x + 315 && x = 60 \\ \frac{14x}{14} &= \frac{840}{14} && \end{aligned}$$

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