Congruence and Similarity Part 2

Solution

6. Since $\Delta ABC \sim \Delta DEF$,

we have $\frac{AC}{DF} = \frac{AB}{DE}$

$$\frac{6}{9} = \frac{x}{12}$$

$\therefore\ x = \frac{6 \times 12}{9} = 8$ and $\angle B = \angle E$

$y = 33^\circ$

7. Since $\Delta EFG \sim \Delta DFE$,

we have $\angle EGF = \angle DEF$

i.e. $a = 72.5^\circ$ and $\frac{FE}{FG} = \frac{DF}{EF}$

$$\frac{5}{3} = \frac{x}{5}$$

$\therefore\ x = \frac{5 \times 5}{3}$

$= 8\frac{1}{3}$

8. $\angle DFE = \angle SRT$ (given)

$\frac{DF}{TR} = \frac{20}{8} = \frac{5}{2}$

$\frac{EF}{SR} = \frac{15}{6} = \frac{5}{2}$

$\therefore\ \frac{DF}{TR} = \frac{EF}{SR}$

$\therefore\ \Delta DEF \sim \Delta TSR$ (ratio of 2 sides, inc. $\angle$)