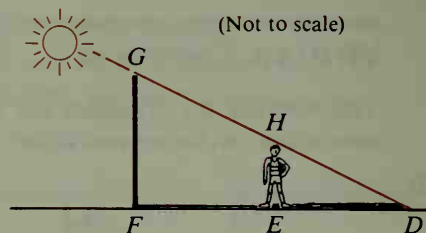
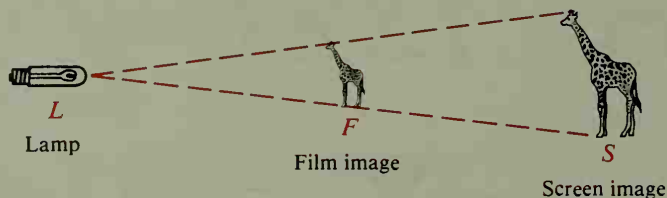


16. To estimate the height of a pole, a basketball player exactly 2 m tall stood so that the ends of his shadow and the shadow of the pole coincided. He found that  $\overline{DE}$  and  $\overline{DF}$  measured 1.6 m and 4.4 m, respectively. About how tall was the pole?

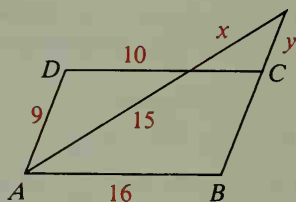


17. The diagram, *not* drawn to scale, shows a film being projected on a screen.  $LF = 6$  cm and  $LS = 24$  m. The screen image is 2.2 m tall. How tall is the film image?

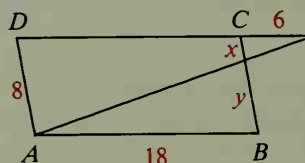


**In Exercises 18 and 19  $ABCD$  is a parallelogram. Find the values of  $x$  and  $y$ .**

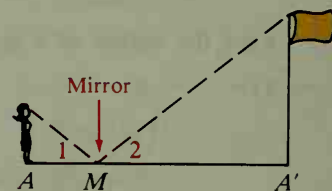
- 18.



- 19.



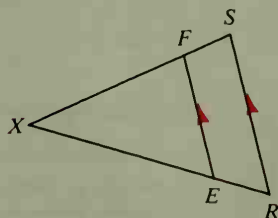
20. You can estimate the height of a flagpole by placing a mirror on level ground so that you see the top of the flagpole in it. The girl shown is 172 cm tall. Her eyes are about 12 cm from the top of her head. By measurement,  $AM$  is about 120 cm and  $A'M$  is about 4.5 m. From physics it is known that  $\angle 1 \cong \angle 2$ . Explain why the triangles are similar and find the approximate height of the pole.



- 21.** Given:  $\overline{EF} \parallel \overline{RS}$

Prove: **a.**  $\triangle FXE \sim \triangle SXR$

b.  $\frac{FX}{SX} = \frac{EF}{RS}$



22. Given:  $\angle 1 \cong \angle 2$

Prove: **a.**  $\triangle JIG \sim \triangle JZY$

**b.**  $\frac{JG}{JY} = \frac{GI}{YZ}$

