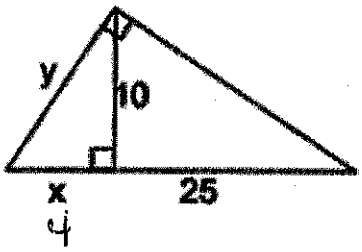
7 x = 4 y = 10.8



(Y) $\frac{H}{L} = \frac{L}{S}$

$\frac{29}{y} = \frac{y}{4}$

$116 = y^2$

$y = 10.8$

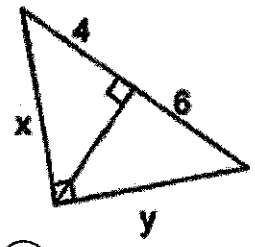
(X) $\frac{S_1}{a} = \frac{a}{S_2}$

$\frac{x}{10} = \frac{10}{25}$

$25x = 100$

$x = 4$

8 x = 6.3 y = 7.7



(X) $\frac{H}{L} = \frac{L}{S}$

$\frac{10}{x} = \frac{x}{4}$

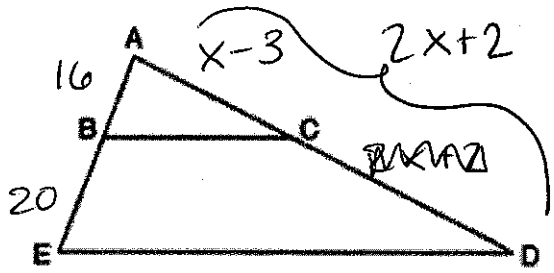
$\sqrt{40} = \sqrt{x^2}$

$x = 6.3$

(Y) $\frac{H}{L} = \frac{L}{S}$

$\frac{10}{y} = \frac{y}{6}$ $\sqrt{60} = \sqrt{x^2}$ $x = 7.7$

9 In the diagram below of $\triangle ADE$, B is a point on $\overline{AE}$ and C is a point on $\overline{AD}$ such that $\overline{BC} \parallel \overline{ED}$, $AC = x - 3$, $BE = 20$, $AB = 16$, and $AD = 2x + 2$. Find the length of $\overline{AC}$.



$\frac{16}{36} = \frac{x-3}{2x+2}$

$\overline{AC}$

$x - 3$

$35 - 3 = 32$

$32x + 32 = 36x - 108$

$+108 \quad +108$

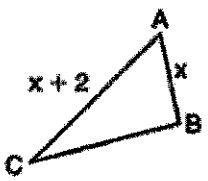
$32x + 140 = 36x$

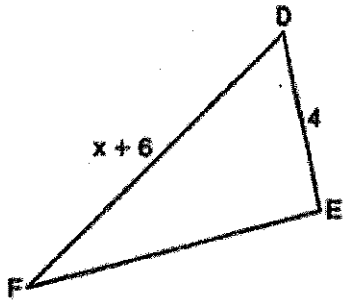
$-32x \quad -32x$

$140 = 4x$

$x = 35$

10 In the diagram below, $\triangle ABC \sim \triangle DEF$, $DE = 4$, $AB = x$, $AC = x + 2$, and $DF = x + 6$. Determine the length of $\overline{AB}$. [Only an algebraic solution can receive full credit.]





$\frac{x+2}{x+6} = \frac{x}{4}$

$AB = x$

$AB = 2$

$x = 2$

$4x + 8 = x^2 + 6x$

$-4x - 8 \quad -4x - 8$

$0 = x^2 + 2x - 8$

$(x - 2)(x + 4)$

$x = 2 \mid x = -4$