7-36.

a. They are congruent by $\textbf{ASA} \cong$ or $\textbf{AAS} \cong$.

b. $\overline{DF} = 20$ feet

7-37.

$\frac{x}{8} = \frac{8}{18}$, $x = \frac{32}{9} = 3.\overline{5}$

7-38.

a. no solution

b. $b = -3$, $c = -8$

7-39.

a. 6.6×10^7

b. $-27x^6y^6$

c. $12xy - 3x + 16y - 4$

d. $x^2 - 4x + 6$

7-40.

a. On average student backpacks get 0.55 pounds lighter with each quarter of high school completed.

b. About 44% of the variability in student backpack weight can be explained by a linear relationship with the number of quarters of high school completed.

c. The "largest" residual value is about 6.2 pounds and it belongs to the student who has completed 3 quarters of high school.

d. $13.84 - 0.55(10) = 8.34$ lbs

e. A different model would be better because it looks like there is a curved pattern in the residual plot.

7-41.

$\frac{x}{20} = \frac{x+2}{24}$; $x = 10$