Linear Systems, Quadratics, and Absolute Value Eq

Find the (*x*, *y*) solution to each linear system.

1) $-8x - 4y = 12$
$7x - y = 21$

2) $3x + 2y = 19$
$-x - 4y = -3$

3) $5x - 3y = -12$
$9x - 6y = -21$

4) $12x - 8y = 12$
$-3x + 10y = -27$

5) $2x + y = 22$
$-5x + 5y = -25$

6) $3x - 4y = -20$
$-4x - 5y = 6$

Find the value(s) of *x* that complete each equation.

7) $7x^2 + 43x + 40 = 0$

8) $7x^2 + 22x - 24 = 0$

9) $3k^2 - 17k + 24 = 0$

10) $2b^2 + 11b - 40 = 0$

11) $5x^2 - 12x - 9 = 0$

12) $7x^2 + 12x - 4 = 0$

Solve each equation.

13) $\left|k+5\right|+9=12$

14) $\frac{\left|8-4x\right|}{6}=1$

15) $4\left|2v-4\right|=56$

16) $-2+\left|-4p+6\right|=20$

17) $\frac{\left|3v+9\right|}{7}=1$

18) $\frac{\left|4n-8\right|}{8}=3$

19) The indoor climbing gym is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 9 vans and 14 buses with 707 students. High School B rented and filled 13 vans and 13 buses with 689 students. Each bus and each van is filled to capacity and each is identical. How many students can a van carry? How many students can a bus carry?

20) Darryl and Adam are selling pies for a school fundraiser. Customers can buy apple pies and pumpkin pies. Darryl sold 13 apple pies and 6 pumpkin pies for a total of $173. Adam sold 2 apple pies and 7 pumpkin pies for a total of $136. What is the cost each of one apple pie and one pumpkin pie?