LESSON 131

1. Restrictions: $x \neq 0$; LCD $= 6x$

Multiply by the LCD, then solve for x.

$3x + x = 6$

$x = 3/2$ ✓

2. Restrictions: $x \neq 0, -3$; LCD $= 2x(x+3)$

Multiply by the LCD, then solve for x.

$2(x+3) + 2x = x(x+3)$

$x^2 - x - 6 = 0$

$(x+2)(x-3) = 0$

$x = -2, x = 3$ ✓

3. $x =$ time together

$$\frac{1}{2} + \frac{1}{3} = \frac{1}{x}$$

Sove for x, and you get $x = 6/5 = 1.2$.

It will take 1.2 hours.

4. $x =$ Laura's time alone

$x - 6 =$ Brian's time alone

$$\frac{1}{x} + \frac{1}{x-6} = \frac{1}{4}$$

Sove for x, and you get $x = 2$ and $x = 12$.

$x - 6 > 0$, so $x = 12$.

It will take 12 hours.

5. $x =$ speed of the wind

$150 + x =$ speed of the plane with the wind

$150 - x =$ speed of the plane against the wind

$$\frac{360}{150+x} = \frac{240}{150-x}$$

Sove for x, and you get $x = 30$.

The speed of the wind is 30 mph.

6. $x =$ time together

$$\frac{1}{30} + \frac{1}{45} = \frac{1}{x}$$

Sove for x, and you get $x = 18$.

It will take 18 minutes.

7. $x =$ time together

$$\frac{1}{8} + \frac{1}{12} = \frac{1}{x}$$

Sove for x, and you get $x = 24/5 = 4.8$.

It will take 4.8 hours.

8. $x =$ Paul's time alone

$$\frac{1}{6} + \frac{1}{x} = \frac{1}{4}$$

Sove for x, and you get $x = 12$.

It will take 12 hours.

9. $x =$ pipe B's time alone

$$\frac{1}{4} + \frac{1}{x} = \frac{1}{2}$$

Sove for x, and you get $x = 4$.

It will take 4 hours.

10. $x =$ Liam's time alone

$3x =$ Henry's time alone

$$\frac{1}{x} + \frac{1}{3x} = \frac{1}{6}$$

Sove for x, and you get $x = 8$.

It will take 8 hours.

11. $x =$ speed of the wind

$250 + x =$ speed of the plane with the wind

$250 - x =$ speed of the plane against the wind

$$\frac{1100}{250+x} = \frac{900}{250-x}$$

Sove for x, and you get $x = 25$.

The speed of the wind is 25 mph.

12. $x =$ speed of the boat

$x + 2 =$ speed of the boat with the current

$x - 2 =$ speed of the boat against the current

$$\frac{60}{x+2} = \frac{48}{x-2}$$

Sove for x, and you get $x = 18$.

The speed of the boat is 18 km/h.