



Math Olympiad and Problem Solving Programs
E120 - Honors Algebra Problem Solving
Problem Set 7.1 - Use Assumptions

Name:

Date:

1.

2.

3.

4.

5.

6. If there are x late shipments, then there are $(2000 - x)$ on-time shipments.

$$5(2000 - x) - 40x = 9190$$

$$10000 - 5x - 40x = 9190$$

$$810 = 45x$$

$$x = \text{18}$$

7.

8. If Neil answered x questions correctly, then he answered $20 - x$ incorrectly.

$$20x - 12(20 - x) = 240$$

$$20x - 240 + 12x = 240$$

$$32x = 480$$

$$x = \text{15}$$

9. If Jerry is x years old, his mom is $(x + 24)$ years old, and his dad is $(x + 24) + 4 = (x + 28)$ years old.

$$x + (x + 24) + (x + 28) = 82$$

$$3x + 52 = 82$$

$$3x = 30$$

$$x = \text{10}$$

10. If a jacket is x dollars, then a shirt is $(x - 20)$ dollars.

$$6x = 8(x - 20)$$

$$6x = 8x - 160$$

$$160 = 2x$$

$$x = 80$$

Each jacket is \$80 so the school can buy $720 \div 80 = \text{9 jackets}$.