

## Inequality Worksheets

1. Systolic blood pressure is the higher number in a blood pressure reading. It is measured as the heart muscle contracts. Heather was with her grandfather when he had his blood pressure checked. The nurse told him that the upper limit of his systolic blood pressure is equal to half his age increased by 110.

a)  $a$  is the age in years, and  $p$  is the systolic blood pressure in millimeters of mercury (mmHg). Write an inequality to represent this situation.

b) Heather's grandfather is **76** years old. What is *normal* for his systolic blood pressure?

2. Jack's age is three years more than twice the age of his younger brother, Jimmy. If the sum of their ages is at most 18, find the greatest age that Jimmy could be.

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a)  $a$  is the age in years, and  $p$  is the systolic blood pressure in millimeters of mercury (mmHg). Write an inequality to represent this situation.

$$p \leq \frac{1}{2}a + 110$$

b) Heather's grandfather is 76 years old. What is *normal* for his systolic blood pressure?

$$p \leq \frac{1}{2}a + 110, \text{ where } a = 76.$$

$$p \leq \frac{1}{2}(76) + 110$$

$$p \leq 38 + 110$$

$$p \leq 148$$

*A systolic blood pressure for his age is normal if it is at most 148 mmHG.*

2. Jack's age is three years more than twice the age of his younger brother, Jimmy. If the sum of their ages is at most 18, find the greatest age that Jimmy could be.

*Let the variable  $j$  represent Jimmy's age in years.*

*Then, the expression  $3 + 2j$  represents Jack's age in years.*

$$j + 3 + 2j \leq 18$$

$$3j + 3 \leq 18$$

$$3j + 3 - 3 \leq 18 - 3$$

$$3j \leq 15$$

$$\left(\frac{1}{3}\right)(3j) \leq \left(\frac{1}{3}\right)(15)$$

$$j \leq 5$$

*Jimmy's age is 5 years or less.*