

Write an inequality that represents the problem and solve.

- 11) Josh has scored 35 points so far this basketball season. The school record is 85 points. How many more points does Josh need to score to break the record? $X = \text{points needed}$

inequality:
$$\begin{array}{r} X + 35 > 85 \\ -35 \quad -35 \end{array}$$

solution:
$$\underline{X > 50}$$

- 12) Five times the difference of a number and 8 is at most 105. What are the possible solutions? $X = a \#$

inequality:
$$\underline{5(X-8) \leq 105}$$

solution:
$$\underline{X \leq 29}$$

$$\begin{array}{r} 5X - 40 \leq 105 \\ +40 \quad +40 \\ \hline 5X \leq 145 \\ \frac{5X}{5} \leq \frac{145}{5} \quad X \leq 29 \end{array}$$

- 13) Each month Marie pays Molly Maids \$6.75 per hour to clean her apartment and always gives them a \$15 tip. If she budgets \$65 for this month's cleaning, how many hours can she employ Molly Maids? $X = \text{hours for molly maids}$

inequality:
$$\underline{6.75h + 15 \leq 65}$$

solution:
$$\underline{h \leq 7.407}$$

$$\begin{array}{r} 6.75h + 15 \leq 65 \\ -15 \quad -15 \\ \hline 6.75h \leq 50 \\ \frac{6.75h}{6.75} \leq \frac{50}{6.75} \\ h \leq 7.407 \end{array}$$

- 14) Admission to the state fair costs \$6 and each ride costs \$1.25. If Emmanuel wants to spend no more than \$20 at the fair, how many rides can he ride? $X = \# \text{ of rides}$

inequality:
$$\underline{6 + 1.25x \leq 20}$$

solution:
$$\underline{X \leq 11.2}$$

$$\begin{array}{r} X + 1.25x \leq 20 \\ -6 \quad -6 \\ \hline \end{array}$$

- 15) Half of the sum of a number and 4 is less than 14. What is the number? $X = a \#$

inequality:
$$\underline{\frac{(X+4)}{2} < 14}$$

solution:
$$\underline{X < 24}$$

$$\begin{array}{r} 1.25x \leq 14 \\ \frac{1.25x}{1.25} \leq \frac{14}{1.25} \\ x \leq 11.2 \end{array}$$

$$\begin{array}{r} 2 \cdot \frac{(X+4)}{2} < 14 \cdot 2 \\ X+4 < 28 \\ -4 \quad -4 \\ \hline X < 24 \end{array}$$

$$\begin{array}{r} \frac{1}{2}(X+4) < 14 \\ \frac{1}{2}X + 2 < 14 \\ -2 \quad -2 \\ \hline \frac{1}{2}X < 12 \\ 2 \cdot \frac{1}{2}X < 12 \cdot 2 \\ X < 24 \end{array}$$

Solve each inequality.

16)
$$4x + 5 < -7$$

$$\begin{array}{r} 4x < -12 \\ \frac{4x}{4} < \frac{-12}{4} \quad X < -3 \end{array}$$

solution:
$$\underline{X < -3}$$

17)
$$\frac{x}{4} - 3 \leq -23$$

$$4 \cdot \frac{x}{4} \leq -20.4 \quad X \leq -80$$

solution:
$$\underline{X \leq -80}$$

18)
$$50 < -5x + 5 + 5x$$

$$\begin{array}{r} 50 < -10x \\ +5 \quad +5 \\ \hline 55 < -10x \\ \frac{55}{-10} < \frac{-10x}{-10} \quad -5.5 > X \end{array}$$

solution:
$$\underline{X < -5.5}$$

19)
$$3(-2x + 4) > 4x - 8$$

$$\begin{array}{r} -6x + 12 > 4x - 8 \\ -12 \quad -12 \\ \hline -6x > 4x - 20 \end{array}$$

solution:
$$\underline{X < 10}$$

20)
$$12 + \frac{x}{-6} > -2 - 12$$

$$\begin{array}{r} 12 + \frac{x}{-6} > -14 \\ -12 \quad -12 \\ \hline \frac{x}{-6} > -26 \\ \frac{x}{-6} > -26 \cdot -6 \quad X < 156 \end{array}$$

solution:
$$\underline{X < 156}$$