2.7 Practice Name Solutions

Pick a letter for the variable, explain what the variable represents and translate to an inequality.

1. My salary next year will be at least $45,000.

Explain Variable X = Salary

Inequality $X \geq 45{,}000$

2. A number is greater than −57.35

Explain Variable X = number

Inequality $X > -57.35$

3. The average speed, s, was between 80 and 120 mph.

Explain Variable S = speed

Inequality $80 < S < 120$

4. The price of a baseball glove is at most $36.49.

Explain Variable X = price

Inequality $X \leq 36.49$

5. The temperature is at most 84°.

Explain Variable X = temperature

Inequality $X \leq 84°$

6. The barrel of peaches weighs at least 12 lb.

Explain Variable X = weight

Inequality $X \geq 12$

Pick a letter for the variable, explain what the variable represents, translate to an inequality and solve the inequality

7. A car rents for $30 per day plus 23¢ per mile. You are on a daily budget of $76. What mileage will allow you to stay within your budget?

X = miles

76 TOTAL

Total = day charge + cost of miles

$76 = 30 + 0.23(x)$

$-30 \quad -30$

$46 = 0.23x$

$\frac{46}{0.23} = \frac{0.23x}{0.23}$

$200 = x$

Over ➡

8. You are taking a math course in which there will be four tests, each worth 100 points. You have scores of 97, 94, and 97 on the first three tests. You must earn a total of 360 points in order to get an A. What scores on the last test will give you an A?

X = 4th test

$97 + 94 + 97 + X \geq 360$

$288 + X \geq 360$

$-288 \quad -288$

$X \geq 72$

Get 72 or more to keep A.

9. Carlos can be paid in one of two ways. Plan A is a salary of $500 per month, plus a commission of 8% of sales. Plan B is a salary of $653 per month, plus a commission of 5% of sales. For what amount of sales is Carlos better off selecting Plan A?

X = money in sales

Plan A > Plan B

$500 + 0.08(x) > 653 + 0.05x$

$-0.05x \quad -0.05x$

$500 + 0.03x > 653$

$-500 \quad -500$

$0.03x \geq 153$

$\frac{0.03x}{0.03} \geq \frac{153}{0.03}$

$X = 5100$

Carlos must sell $5100 for plan A to be better

10. Judith is about to invest $27,000, part at 4% and the rest at 8%. What is the most she can invest at 4% and still be guaranteed at least $2000 a year?

27,000 total investment

X = amount invested in 4% account

$27000 - X$ = amount invested in 8%

Total interest ≥ 2000

$0.04(X) + 0.08(27,000 - x) \geq 2000$

$0.04X + 2160 - 0.08x \geq 2000$

$-0.04X + 2160 \geq 2000$

$-2160 \quad -2160$

$-0.04x \geq -160$

$\frac{-0.04x}{-0.04} \geq \frac{-160}{-0.04}$

switch

$X \leq 4000$

$4000 is the most to invest at 4% so total interest will be $2000