

1. One more than three times a number is 7

Hint	Build the Equation
What is an unknown quantity?	n
Three times a number	$3n$
One more $+1$	$3n+1$ expression
Is 7 $=7$	$3n+1=7$ equation
Equation	Solve $\begin{aligned} & -1 \quad -1 \\ 3n &= 6 \\ \frac{3n}{3} &= \frac{6}{3} \\ n &= 2 \end{aligned}$

2. The quotient of a number and 5, less 10, is 3.

Hint	Build the Equation
unknown quantity	n
Quotient of n & 5	$\frac{n}{5}$
less 10	$\frac{n}{5} - 10$
is 3	$\frac{n}{5} - 10 = 3$
Equation:	Solve: $\begin{aligned} & +10 \quad +10 \\ 5 \cdot \frac{n}{5} &= 13 \cdot 5 \\ n &= 65 \end{aligned}$

3. Fifteen more than half a number is 9. $\frac{1}{2}n + 15 = 9$

4. Eight more than four times a number is -12. $4n + 8 = -12$

5. Six less than seven times a number is equal to -20. $7s - 6 = -20$

6. Four less than five times a number is 15. $5n - 4 = 15$

SWAG

Building Equations from Word Problems

Name _____

Date: _____

Period: _____

Chris has saved \$625 for a new guitar and lessons. His guitar costs \$275, and the guitar lessons are \$25 per hour. Determine how many hours of lessons he can afford.

1. What is the question? How many hours can he afford?
2. Make an educated guess as to what the solution will be to this question. 8, 7, 12, 14, 13, 22
 - a. Explain why the educated guess makes sense. _____
3. In algebra, how is an unknown quantity represented? with a variable $\rightarrow h$
4. Use the table below to build an equation:

Hint	Build the Equation
What represents an unknown quantity?	h
How much does each guitar lesson cost? <i>How would you represent that if you want to know how much x guitar lessons costs?</i>	$25h$
How much do you spend on the guitar? <u>275</u>	$25h + 275$
What is your total bill? <u>625</u>	$25h + 275 = 625$

Equation: _____

Solve the equation and check your answer

Solve the Equation	Check your work
$25h + 275 = 625$ $\begin{array}{r} -275 \quad -275 \\ \hline 25h = 350 \\ \frac{25}{25} \quad \frac{25}{25} \\ \hline h = 14 \end{array}$	$25(14) + 275 = 625$ $350 + 275 = 625 \checkmark$

Interpret your solution: Chris can afford 14 hours of lessons.