Name:_____

Grade 6

Patterning & Algebra: Solving Equations 2

Numbers like 8, 0.5, $\frac{2}{3}$, and 42% are symbols which represent unchangeable values.

Variables like *n* and *z* are symbols which represent unknown or changeable values.

1. Complete the following chart.

Equation	Numbers	Variable(s)
$3a = 12$	3, 12	a
$133y = 266$		
$5z + 2 = 71828$		
$y = 5x + 7$		

Note that:
a really means 1*a*,
b + *b* + *b* is 3*b*,
2*c* is *c* + *c*, and
87*d* is 87 x *d*

2. Solve each equation for the variable (calculate the value of the letter).

a) $a + 37 = 42$ $a =$ _____

b) $24 - n = 7$ $n =$ _____

c) $h - 17 = 17$ $h =$ _____

d) $9n = 99$ $n =$ _____

e) $28 = 14m$ $m =$ _____

f) $10b = 100 + 10$ $b =$ _____

g) $2k + 1 = 25$ $k =$ _____

h) $25c - 5 = 70$ $c =$ _____

i) $18 = 3y + 6$ $y =$ _____

j) $43 = 7q + 1$ $q =$ _____

3. Solve each of the 12 equations. Connect the equation on the left with the equation on the right which has the same *x*-value. One has been done for you.

a) $16 + x = 20$, $x = 4$

b) $6x + 1 = 37$, $x =$

c) $x + 15 = 26$, $x =$

d) $11x = 33$, $x =$

e) $19 + x = 21$, $x =$

f) $13x - 17 = 113$, $x =$

i) $12x = 132$, $x =$

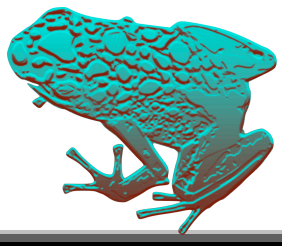
ii) $7x = 28$, $x = 4$

iii) $5x + 13 = 63$, $x =$

iv) $x + 35 = 38$, $x =$

v) $2x - 11 = 1$, $x =$

vi) $24x = 48$, $x =$



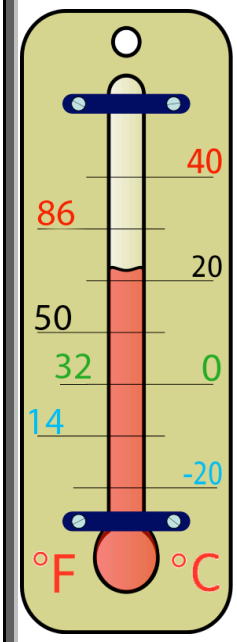
4. Play the game **Solving Equations 2** three of four times. Go to *mathfrog.ca* for the link.

Expectation: i) Determine the solution to a simple equation with one variable.

5. Pablo wishes to buy some candy priced at $2.00 for a 75 g package. Pablo has $26.00. Create and solve an equation to find how much candy he can buy.

6. Temperature is measured using many different scales. Three of the most common are Celsius (C), Fahrenheit (F) and Kelvin (K). The equations to change from Celsius to Fahrenheit and Kelvin are: $F = 1.8C + 32$ and $K = C + 273$.

a) If the temperature is 0 Celsius, what is it in Fahrenheit and Kelvin?



b) If the temperature is 25 Celsius, what is it in Fahrenheit and Kelvin?

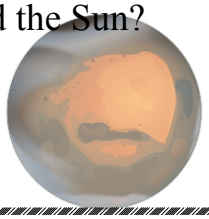
DID YOU KNOW?

On the Celsius scale, water freezes at 0 °C. On the Kelvin scale everything freezes at 0 K.

c) If the temperature is 303 Kelvin, what is it in Celsius and Fahrenheit?

TRY THIS!

Mars takes about 1.8 times as long as Earth to orbit the Sun. Rounded to the nearest Earth Day, how long does it take Mars to complete the first one-half of its orbit around the Sun?



7. For an extra challenge, try the game *Variable Stopwatch* at http://vectorkids.com/vkvariable.htm

Expectation: i) Determine the solution to a simple equation with one variable.