Algebra Unit II
Playing with Expressions Worksheet Solutions

1. Write the expression that has the following variables, coefficients and constants in each question:
   a. Variable: t ; Coefficient : 3; Constant : +7 Ans: 3t +7

   b. Variable: x; Coefficient : 5; Constant : +1 Ans: 5x + 1

   c. Variable: y ; Coefficient : -4; Constant : +3 Ans: -4y + 3

   d. Variable: p ; Coefficient : 2; Constant : - 5 Ans: 2p – 5

   e. Variable: a ; Coefficient : 2/3 ; Constant : -9 Ans: $\frac{2}{3}a - 9$

2. Substitute the given values for the variables in each question below and find the value of the expressions:
   1. 5x + 8

a. x = 1	5 x 1 + 8 = 5 + 8 = 13
b. x = 3/5	$5 \times \frac{3}{5} + 8 = 3 + 8 = 11$
c. x = 8	5 x 8 + 8 = 40 + 8 = 48

   2. 8g – 5

a. g = 7	8 x 7 – 5 = 56 – 5 = 51
b. g = -1	8 x (-1) – 5 = - 8 – 5 = - 13
c. g = ½	8 x ½ - 5 = 4 – 5 = - 1

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3. $\frac{2}{5}\,m - 7$

a. m = 10	$\frac{2}{5} \times 10 - 7 = 4 - 7 = -3$
b. m = 25	$\frac{2}{5} \times 25 - 7 = 10 - 7 = 3$
c. m = 12	$\frac{2}{5} \times 12 - 7 = \frac{24}{5} - 7 = -\frac{11}{5}\ or\ -2\frac{1}{5}$

4. $\frac{1}{3}\,k - \frac{3}{5}$

a. k = 21	$\frac{1}{3} \times 21 - \frac{3}{5} = 7 - \frac{3}{5} = \frac{32}{5}\ or\ 6\frac{2}{5}$
b. k = 15	$\frac{1}{3} \times 15 - \frac{3}{5} = 5 - \frac{3}{5} = \frac{22}{5}\ or\ 4\frac{2}{5}$
c. k = 4	$\frac{1}{3} \times 4 - \frac{3}{5} = \frac{4}{3} - \frac{3}{5} = \frac{11}{15}$

3. Combine and simplify the following expressions wherever possible:

1. 5x + 3 +3x – 8 Ans: 5x + 3x +3 – 8 = 8x - 5

2. 4y – 3m + 4 + 2y + 3 Ans: 4y + 2y – 3m + 4 + 3 = 6y – 3m + 7

3. 4k + 3j Ans: Cannot be simplified

4. 3c + 4 – 5c + 3 + 7c – 2c – 2 Ans: 3c – 5c + 7c – 2c +4+ 3 – 2 = 3c + 5

5. 6y – 3x + 5 + 2y + 9 – 2x Ans: 6y + 2y – 3x – 2x +5 + 9 = 8y – 5x + 14

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