

MATH 5: WORKSHEET 4
ALGEBRAIC EXPRESSIONS AND WORD PROBLEMS

1. Compute:

(a) $1\frac{7}{8} \times \frac{18}{5}$ (b) $2\frac{4}{7} \div \frac{4}{21}$ (c) $\frac{13}{7} - \frac{7}{13}$

2. Find the values of these algebraic expressions:

(a) $78 + 3x$ for $x = 8$; 2.3; and $\frac{2}{3}$;

(b) $54 \div (x - 7)$ for $x = 8.5$; 13; and 11;

3. Using the laws above, try to rewrite each of the expressions below in the simplest possible form, by collecting the like terms if possible.

(a) $3(2x + 1) + 9 + 5xy + 2xy + 3$ (b) $2 - (1 - x)$ (c) $7x - (3x + 15)$

(d) $3(2x - 1) + x$ (e) $2a(a - 2) - a(a - 1)$ (f) $(2x - 1)(x + 1)$

4. Solve the following equations.

(a) $x + 12 = 34$ (b) $24 - x = 10$ (c) $2x = 96$

(d) $3x + 2 = 44$ (e) $5(x + 4) = 45$ (f) $-3x + 1 = 4$

5. (a) Show that $(a + 1)(a - 1) = a \cdot a - 1$

(b) Without using a calculator, compute 199999×200001

1. Staff brought the elephant 9 buckets of water, with 6 liters in each. 27 liters he drank himself, and used up the rest on spraying the director of the zoo. How many buckets were sprayed on the director?

2. A dog weighs 2 pounds more than a cat. 3 cats and 4 dogs together weigh 43 pounds. How much does a dog weigh? A cat?

3. A bar of soap weighs as much as $\frac{3}{4}$ of an identical bar plus $\frac{3}{4}$ of a pound. How much does the bar of soap weigh?

4. A father is twice as old as his son. The sum of their ages is 48 years. How old is each of them?

5. An orange costs 2 cents more than an apple. A grapefruit costs as much as 3 oranges. A fruit basket consists of 10 apples, 5 oranges, and a grapefruit.
 - (a) If the price of an apple is a , what is the price of an orange? a grapefruit? Simplify expressions!
 - (b) If the fruit basket costs \$1.96, how much each of the fruits cost?

6. John and Sally together have 93 cents; John and Mina together have 104 cents; Sally and Mina together have 95 cents. How much money does each of them have?