

SchoolNova, Math 5c
Homework 5
Operations with Integers, Properties of Addition and Multiplication, Basic
Algebra
October 22, 2017

Please provide sufficient details about how you solved the problem. More difficult problems are marked with a *. If unable to solve a problem, please present your thoughts and any partial solution.

1. Compute the following sums/differences:

(a) $-7 + (-14)$

(b) $-54 - (-20)$

(c) $-(-99 + (-1))$

(d) $(-10) + (-11) + (-12)$

(e) $-15 - (13 - (-7))$

2. Compute the following products:

(a) $(-7) \times 6$

(b) $(-8) \times (-9)$

(c) $(-5) \times (6) \times (-10)$

(d) $(-1) \times (-2) \times (-3) \times (-4) \times (-5)$

(e) $2 \times 2 \times 2 \times 2 \times 2$

(f) $(-2) \times (-2) \times (-2) \times (-2) \times (-2)$

3. Compute the following expressions (utilize the properties of addition and multiplication):

(a) $73 \times 2 + 73 \times 8$

(b) $150 \times (-2) + (-150) \times (18)$

(c) $1846 \times 99 - (-1846)$

(d) $1569 \times 87 - 569 \times 87$

4. Simplify the following algebraic expressions:

(a) $3(2x-1)$

(b) $2 + (1-x)$

(c) $7x - (3x+15)$

(d) $3(2x-1) + x$

5. (a) Show that $(a + 1)(a - 1) = a^2 - 1$.

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

6. The population of a certain species of insects is x now. It becomes y times itself after each week. What will be its population after 3 weeks?

7. The volume of a rectangular cuboid is the product of its length, width and height. The length of a cuboid is 3 times its width, and its height is one half its length. If its width is w cm, find its volume.

8. 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) Write expressions for the price of each fruit, denoting the price of an apple by the letter a .

(b) If the fruit basket costs \$1.96, how much does each fruit cost?

9. A lumberjack is cutting logs into shorter ones, to be used for firewood later. He started with 15 logs (of different lengths) and made 24 cuts. Can you find out how many logs he ended up with?