

Note: This worksheet is to be completed WITHOUT a calculator.

1. Draw an integer counter diagram to represent each of the following expression and determine the answer.

a) $2+3=$

b) $4+(-5)=$

c) $(-2)-(+9)=$

d) $3-(-6)=$

e) $2\times 4=$

f) $-3\times 1=$

g) $6\div 2=$

h) $-10\div 2=$

i) $-8\div(+4)=$

2. Determine the answer to the following. No counter diagram / number line is necessary.

a) $14+(-25)=$

b) $56-(-39)=$

c) $-104+(-85)=$

d) $-91-78=$

e) $-56+109=$

f) $78-(-164)=$

g) $\frac{56}{-8}=$

h) $14\times(-3)=$

i) $-36\div 4=$

j) $(-5)\times(-30)=$

k) $\frac{-49}{-7}=$

l) $11\times 8=$

m) $4\times(-7)\times 100=$

n) $(-120)\div 6\div(-2)=$

o) $(-28)\div(-7)\times(-50)=$

3. Multiply each of the following using the area model. Clearly show your reasoning.

a) $7 \times (-29) =$

b) $(-9) \times 72 =$

c) $4 \times 44 =$

4. Write the following as a multiplication statement then calculate the answer.

a) $-1^5 =$

b) $(-1)^5 =$

c) $4^3 =$

d) $(-2)^4 =$

5. Evaluate the following. Show your work step by step.

a) $8 - 4 \cdot 3 =$

b) $(8 - 4) \times 3 =$

c) $\frac{16}{8} - 4 \times 2 =$

d) $3 \times 2^3 \div 8 - 3 =$

e) $(3 - 6)^3 \div 3^2 \times 3 =$

f) $9 - 3^4 \div (-9)^2 \cdot 27 =$

g) $3 - [2 - (2 - 3)] + (5 - 4) \times 7 - 9 =$

h) $\frac{(-2)^3 - 3^2 + (-1)^4}{64 \div 2^4 \div (-4)} =$

$$i) \frac{5 + (-25) - 10 \div 2 + 4^2}{4 \times 2 - 1 + (-2)^3 - (-4)} =$$

6. Indicate all the mistakes in each of the following examples shown below. There are at least one mistake in each example:

a) Julie's Work:

$$\begin{aligned} 15 \div 3 + 2 - 75 \times 4 \\ = 15 \div 5 - 28 \\ = 3 - 28 \\ = -25 \end{aligned}$$

b) Adam's Work:

$$\begin{aligned} -27 + 9 \times 2 - 6 \\ = -27 + 9 \times (-4) \\ = -27 + (-36) \\ = 63 \end{aligned}$$

c) Kaylee's Work:

$$\begin{aligned} -3 - 4 - 5 \times 2 + 2 \div (-1) \\ = -7 - 10 + (-2) \\ = -15 \end{aligned}$$

7. Jerry lost 2 lbs every month for a year. If his weight at the beginning of the year was 176 lbs, what was his weight at the end of the year?
8. The population of a mining town decreased by 16 000 in 8 years. Find the average annual change in population.
9. A skydiver's altitude decrease from 1815 to 815 m in 20 seconds. At what rate did her altitude change?
10. Six friends visited a zoo. The total cost of admission was \$90. One person was celebrating his birthday, so the others agreed that he should not pay. How much did each of the other pay?

11. Joey wrote 5 math exams and got the following scores: 87%, 74%, 65% 92%, and 82%. What is the average score for his 5 exams?

12. A small aircraft descended 90 m at 3 m/s and then descended 80 m at 2 m/s. For how much time did it descend altogether?

13. A fitness club charges its members \$250 / year. If a member makes a single payment to pay for the next three years, there is a discount of \$5 / month. How much is the single payment?

14. Ms. Wu had a \$350 balance in her bank account. In the next two months, she made four \$95 deposits and six withdrawals of \$50 each. The bank made two preauthorized \$40 payment to Rogers for her monthly phone bill. What is the account balance at the end of the two months?

15. The temperature in Grande Prairie, Alberta, was $+3^{\circ}\text{C}$ at midnight. The temperature dropped by 2°C for 6 hours until 6:00 a.m. to reach the overnight low temperature. What is the overnight low temperature?