Review

Operations with integers

eg $15 + (-8) = 15 - 8 = 7$

eg $-15 + (-8) = -15 - 8 = -23$

eg $15 - (-8) = 15 + 8 = 23$

eg $-15 - (-8) = -15 + 8 = -7$

eg $2 \times (-3) = -6$

eg $(-2)(-3) = 6$

Note: an even # of negatives multiplied gives positive
an odd # of negatives multiplied gives negative

eg $(-2)^4 = 16$

eg $(-2)^3 = -8$

eg $-2^4 = -16$

Remember GEMS

Raising fractions to a power

eg $\left(\frac{2}{3}\right)^3 = \frac{2^3}{3^3} = \frac{8}{27}$

eg $\left(-\frac{1}{4}\right)^3 = -\frac{1}{64}$

Algebra is the study of quantities.
We often use variables or unknowns to help us.
These are placeholders that can be replaced with numbers (for now).

COMMON MISTAKES

$-15 - 8 = -7$

$-15 - (-8) = -23$

$(-2)(-3) = -6$

$-2^4 = 16$

$\left(\frac{2}{3}\right)^3 = \left(\frac{2}{3}\right)\left(\frac{2}{3}\right)\left(\frac{2}{3}\right)$

$\left(-\frac{1}{4}\right)\left(-\frac{1}{4}\right)\left(-\frac{1}{4}\right)$

We can evaluate expressions at given values of variables.

eg $2a + 7$ at:

implied multiplication

$a = 3$ $\quad 2(3) + 7 = 6 + 7 = 13$

$a = -6$ $\quad 2(-6) + 7 = -12 + 7 = -5$

$a = -\frac{7}{8}$ $\quad 2\left(-\frac{7}{8}\right) + 7 = -\frac{7}{4} + \frac{28}{4} = \frac{21}{4}$

eg $-2b^2$ at:

$b = 3$ $\quad -2(3)^2 = -2 \cdot 9 = -18$ $\quad -6^2$

$b = -\frac{1}{3}$ $\quad -2\left(-\frac{1}{3}\right)^2 = -2 \cdot \frac{1}{9} = -\frac{2}{9}$ $\quad \left(\frac{2}{3}\right)^2, -2 \cdot \left(-\frac{1}{9}\right)$

HW: Variable expressions worksheet (10 Q)