

Number Sense Review

Answer key Final answers only. Try first, then check.

CORE SKILLS

- K1** a) $-\frac{14}{2} = -7$, 0 , $\frac{9}{3} = 3$
 b) Whole: 0 and $\frac{9}{3}$. Natural: $\frac{9}{3}$ only.
 c) $-\frac{14}{2}$, $-\frac{2}{3}$, -0.6 , 0 , $0.\overline{4}$, $\frac{9}{3}$

- K2** a) -2
 b) -38
 c) -7

- K3** a) $1\frac{5}{12}$
 b) 3
 c) $\frac{1}{2}$

- K4** a) -6
 b) m^8
 c) $2y^2$

- K5** a) 6.08×10^{-4} and 5.04×10^6
 b) Grain of salt, mosquito, sesame seed, grain of rice
 c) 3×10^6

REAL WORLD

- A1** a) S: \$6.00/kg; M: \$5.00/kg; L: \$5.40/kg
 b) Bag M; five M bags cost \$75 and three L bags cost \$81, so you save \$6.
 c) Bag S: \$3.00 per week. An M bag goes stale with 1 kg left, so it costs \$15 per 4 weeks, or \$3.75 per week (L: \$6.75 per week).

- A2** a) \$103.60; a 44% discount (not 50%)
 b) \$117.07
 c) \$117.05

- A3** a) 1.0×10^{-8} kg
 b) 4.0×10^{11} bacteria
 c) About 2.2×10^{35} kg, about 3.7×10^{10} times Earth's mass. Impossible: food and space run out long before, so the colony cannot keep doubling.

THINK IT THROUGH

- T1** a) The 20% increase is correct. The drop is a $16\frac{2}{3}\% \approx 16.7\%$ decrease, not 20%.
 b) Each percent is measured from the price before the change: \$0.25 out of \$1.25 for the increase, \$0.25 out of \$1.50 for the decrease.
 c) 37.5%
- T2** a) Not always: it works for $n = 1$, but $n = 2$ gives $3^2 + 3^2 = 18$ and $6^2 = 36$.
 b) Always true: both equal x^6 .
 c) False: e.g. $2^{-1} = \frac{1}{2} > 0$.

BOSS LEVEL

Boss a) 5 : 11

b) 4 L

c) No: A is $\frac{1}{4}$ juice and B is $\frac{3}{8}$ juice, so any mix is between $\frac{1}{4}$ and $\frac{3}{8}$ juice, always less than $\frac{1}{2}$.

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