

Expressions and Equations Review

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

CORE SKILLS

- K1** a) $3n - 7$
b) $2(k + 4)$
c) -24
- K2** a) $3x^2 - 4x + 5$; 3 terms; coefficient of x : -4
b) $-2a + 15$
c) $-y - 18$
- K3** a) $n = 20$
b) $x = -4$
c) $x = -5$
- K4** a) $x = 3$
b) $x = 5$
c) $x = 10$
- K5** a) $x = \frac{y + 6}{3}$
b) $h = \frac{2A}{b}$; $h = 5$ cm
c) $n = \frac{S}{180} + 2$

REAL WORLD

- A1** a) $C = 12h + 15$; \$51
b) 5 hours
c) $h \approx 4.58$; 4 hours (\$63), since a 5-hour rental costs \$75.
- A2** a) $2w + 2(2w + 4) = 62$; width 9 m, length 22 m
b) 198 m² of garden, so 396 kg
c) $w = -2$: impossible, a width can't be negative. The two long sides alone would need more than 70 m of fencing, so no such garden exists.
- A3** a) $A = 2g + 25$; $B = 0.5g + 40$
b) $g = 10$ GB; both cost \$45
c) No: $g = 10$ is past the 8 GB limit. Plan A is cheaper for all data from 0 to 8 GB (at 8 GB: \$41 vs \$44).

THINK IT THROUGH

- T1** a) Left side 27, right side -33 : not a solution.
b) $5 - 2 = 3$ breaks the order of operations: the -2 multiplies the bracket, so it must be distributed before subtracting. $5 - 2(x - 3) = 5 - 2x + 6$.
c) $x = 2$; both sides equal 7.
- T2** a) $P = 28$; all three give $w = 4$.
b) e.g. $l = 5$, $w = 2$, $P = 14$: Noor's formula gives $14 - 5 - 14 = -5$, not 2. (Any rectangle whose perimeter is not 28 works.)
c) $\frac{P - 2l}{2} = \frac{P}{2} - \frac{2l}{2} = \frac{P}{2} - l$. A test checks one case only: Noor's formula agrees with the correct one only when $P = 28$.

BOSS LEVEL

- Boss**
- a) 24 km/h (60 km in 2.5 h)
 - b) 60 km/h (the return must take 0.5 h)
 - c) No: 60 km at 40 km/h takes 1.5 h, so $1.5 + t = 1.5$ gives a return time $t = 0$, which is impossible.
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