Acceleration Worksheet #2: Key!

1) F accel

G $v_i = 0\ m/s$ $v_f = 25\ m/s$ $t = 10s$

E $a = \frac{(v_f - v_i)}{t}$

S: $a = \frac{(25\ m/s - 0\ m/s)}{10s}$

$a = \frac{(25\ m/s)}{10s} = \boxed{2.5\ m/s^2}$

2) F: accel

G: $v_i = 2\ m/s$ $v_f = 10\ m/s$ $t = 3s$

E: $a = \frac{(v_f - v_i)}{t}$

S: $a = \frac{(10\ m/s - 2\ m/s)}{3s}$

$a = \frac{(8\ m/s)}{3s} = \boxed{2.67\ m/s^2}$

3) F: accel

G: $v_i = 24\ m/s$ $v_f = 15\ m/s$ $t = 12s$

E: $a = \frac{(v_f - v_i)}{t}$

S: $a = \frac{(15\ m/s - 24\ m/s)}{12s}$

$a = \frac{(-9\ m/s)}{12s} = \boxed{-0.75\ m/s^2}$

4) F: accel

G: $v_i = 85\ m/s$ $v_f = 45\ m/s$

$t = 4.5s$

E: $a = \frac{(v_f - v_i)}{t}$

S: $a = \frac{(45\ m/s - 85\ m/s)}{4.5s}$

$a = \frac{(-40\ m/s)}{4.5s}$

$\boxed{a = -8.89\ m/s^2}$

Note: for each of these I included BOTH ways to solve!

Part Two

1) F: v_f

G: $a = 4\ m/s^2$ $t = 5s$

$v_i = 2\ m/s$

① E: $a = \frac{v_f - v_i}{t}$

$at = v_f - v_i$

$+v_i \quad +v_i$

$at + v_i = v_f$

S: $(4\ m/s^2)(5s) + 2\ m/s = v_f$

$20\ m/s + 2\ m/s = v_f$

$22\ m/s = v_f$

② E: $a = \frac{v_f - v_i}{t}$

S: $4\ m/s^2 = \frac{v_f - 2\ m/s}{5s}$

$20\ m/s = v_f - 2\ m/s$

$+2\ m/s \quad +2\ m/s$

$22\ m/s = v_f$