37) a) -10 m/s
    b) -20 m/s
    c) ?

39) $v_z = (t^2 - 7t + 10)$ $0 = t^2 - 7t + 10$
    a) $5s, 2s$ $-5 \overset{10}{\diagup} -2 \atop 7$
    b) $a(5) = \boxed{3 \text{ m/s}^2}$
        $a(2) = \boxed{-3 \text{ m/s}^2}$ $0 = (t-5)(t-2)$
   $a(t) = 2t - 7$

42)   a) $1s$ $0 = 2\sin(\pi t)$ $a(t) = 2\cos(\pi t)$
    b) -2 m/s^2 * $\pi t = \pi$ $\pi t = 0$
             $\boxed{t = 1}$ $t = 0$

45)
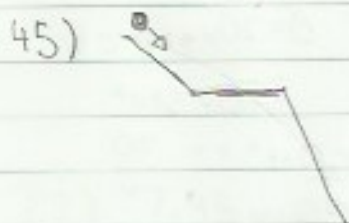
47)   a) yes because it constantly increases by
      2.3 m/s
    b) $34.783s$
* $v(t) = 2.3t$ c)   No
   * $80 \sim t$
    $80 = 2.3t$
    $t = 34.78$
   $x(t) = 1.15t^2$
   $x(34.783) = 1.15(34.783)^2$
        $= 1391.336 m = 0.86 \text{ miles} \cdot 2 = 2.58 \text{ miles}$