Name SOLUTIONS Date _____

# Review For Test 1 MP 1

$d = vt$ $v_f = v_i + at$

1) An antelope is galloping at 12 meters per second (m/s). It does this for 50 seconds (s). How far has the antelope gone?

$v = 12\ m/s$
$t = 50s$
$d = ?$

$d = vt$
$d = (12)(50)$
$d = \boxed{600\ m}$

2) A car is traveling at 70 mph. How far does it go in 25 minutes?

$v = 70\ mph$
$t = 25\ min$
$d = ?$

$t = 25\ min \times \frac{1\ hour}{60\ min} = .42\ hours$

$d = vt$
$d = (70)(.42)$
$d = \boxed{29.4\ m}$

3) What is the final speed if an object moving at 30 m/s accelerates at 7 $m/s^2$ for 8 s?

$V_f = ?$
$V_i = 30\ m/s$
$a = 7\ m/s^2$
$t = 8s$

$V_f = V_i + at$
$V_f = 30 + (7)(8)$
$V_f = 30 + 56$
$V_f = \boxed{86\ m/s}$

4) What is the acceleration if an object goes from 15 m/s to 37 m/s in 1.7 s?

$a = ?$
$V_i = 15\ m/s$
$V_f = 37\ m/s$
$t = 1.7s$

$V_f = V_i + at$
$37 = 15 + a(1.7)$
$37 - 15 = a(1.7)$
$22 = a(1.7)$

$\frac{22}{1.7} = a = \boxed{12.9\ \frac{m}{s^2}}$

5) A car travels at 40 m/s for 18 minutes. How far has it gone?

$v = 40\ \frac{m}{s}$
$t = 18\ min$
$d = ?$

$t = 18\ min \times \frac{60s}{min}$
$t = (18)(60)$
$t = 1080s$

$d = vt$
$d = (40)(1080)$
$d = \boxed{43{,}200\ m}$

6) An object accelerates as it travels 200 m in 8 s. Its final speed was 30 m/s.

a) What was the average speed?

$d = 200m$ $\quad t = 8s$ $\quad V_f = 30 \frac{m}{s}$

$d = vt$

$200 = v(8)$

$200/8 = v = \boxed{25 m/s}$

b) What was the initial speed?

$V = \frac{V_i + V_f}{2}$

$25 = \frac{V_i + 30}{2}$

$(25)(2) = V_i + 30$

$50 = V_i + 30$

$50 - 30 = V_i = \boxed{20 \frac{m}{s}}$

7) An object starts at rest. It accelerates at 4 m/s$^2$ for 12 seconds. How far has it gone?

$V_i = 0 m/s$ $\quad a = 4 m/s^2$ $\quad t = 12s$ $\quad d = ?$

$V_f = V_i + at$

$V_f = 0 + (4)(12)$

$V_f = 48 m/s$

$V = \frac{V_i + V_f}{2}$

$V = \frac{0 + 48}{2}$

$V = 24 \frac{m}{s}$

$d = vt$

$d = (24)(12)$

$d = \boxed{288m}$

8) An object travels 40 m in 8 s at a constant speed. It then accelerates at 7 m/s$^2$ for 10 s. What is the final speed of the object?

PHASE 1

$d = 40m$ $\quad t = 8s$

$d = vt$

$40 = v(8)$

$\frac{40}{8} = V = 5 \frac{m}{s}$

PHASE 2

$V_i = 5 \frac{m}{s}$ $\quad a = 7 \frac{m}{s^2}$ $\quad t = 10s$ $\quad V_f = ?$

$V_f = V_i + at$

$V_f = 5 + (7)(10)$

$V_f = 5 + 70$

$V_f = \boxed{75 m/s}$

Answers: 1) 2) 3) 4) 5) 6) 7) 8)