Quiz 4b

Note Title 27/09/2012

1) As car drives over a speed bump, the springs in the suspension absorb the shock. If a car's suspension experiences 3620 N of force it compresses by 24 cm. What is the spring constant of the suspension?

2) A 0.120 kg arrow is loaded into a bow and drawn back so that the bow distorts it by 0.65 m. When the arrow is released it accelerates at 75 m/s^2. What is the spring constant of the bow?

1.) $F_E = k\Delta x$ ✓ $\quad k = \frac{F_E}{\Delta x} = \frac{3620\,N}{0.24\,m} = 15000\,N/m$ ✓

2.) $F_{net} = F_E = ma = (0.120\,kg)(75\,m/s^2) = 9.00\,N$ ✓

$F_E = k\Delta x \quad k = \frac{F_E}{\Delta x} = \frac{9.00\,N}{0.65\,m} = 14\,N/m$ ✓