

Algebra 2 part 2 Final Exam

1. $H = 16 \text{ ft}$ bounce - $\frac{3}{5}H$
 1st bounce = $16 \times \frac{3}{5} = 9.6 \text{ ft}$
 2nd " (height) = $\frac{3}{5} \times 9.6 = 5.76 \text{ ft}$
 3rd " (H) = $\frac{3}{5} \times 5.76 = 3.456 \text{ ft}$
 4th " (H) = $\frac{3}{5} \times 3.456 = 2.07 \text{ ft}$ a.d.p.

2. Earthquake resisting power.

- Denali quake = $6.7 \times 70 = 469$
- Rat Island = $7.8 \times 30 = 234$

From the above, it is evident that the building strong enough is the one to withstand the Denali quake.

3. Motor cycles = 5.75 M - $r = 16\%$
 cars $\rightarrow 3.5 \text{ M}$ $r = 25\%$

$A = P(1+r)^t$ where P - initial value, r - rate, t - time in yrs.

For cars eqn $\Rightarrow 3.5(1+0.25)^t$ Motor cycle $5.75(1+0.16)^t$
 required

$$3.5(1.25)^t > 5.75(1.16)^t$$

$$\frac{(1.25)^t}{(1.16)^t} \Rightarrow \frac{5.75}{3.5} = 1.6429$$

$$t \ln \left(\frac{1.25}{1.16} \right) \Rightarrow \ln \left(\frac{5.75}{3.5} \right)$$

$$t = \ln \left(\frac{5.75}{3.5} \right) / \ln \left(\frac{1.25}{1.16} \right) = 6.64$$

$$t > 6.64$$