PC11 Unit 4 2.5 Extra Practice

1. Solve the following radical equations.

a) $\sqrt{2t-3}=5$

b) $\sqrt{3t+4}=-2$

c) $\sqrt{1-3x}=-2$

d) $2\sqrt{x-1}=x$

e) $\sqrt{2x+3}-\sqrt{x+2}=2$

f) $-\sqrt{x+3}=\sqrt{3x+5}$

g) $\sqrt{2x+1}=x-7$

h) $\sqrt{3x+10}+5=2x$

i) $x+3=(\sqrt{x+1})(\sqrt{x+6})$

j) $\sqrt{y-8}+\sqrt{y}=2$

k) $\sqrt{1-x}+\sqrt{x+9}=4$

l) $\sqrt{2x+11}+\sqrt{x+6}=2$

m) $\sqrt{z+6}=\dfrac{2}{\sqrt{z+1}}+\sqrt{z+1}$

n) $\sqrt{x+15}+\sqrt{x+7}=\dfrac{4}{\sqrt{x+7}}$

2. The formula $V = \sqrt{2gh}$ relates velocity, V, in metres per second of an object after h metres accelerated by gravity, g, in metres per second squared. If g is approximately 9.8 m/s², how far has an object fallen if its velocity is 30 m/s?

3. The maximum distance, d, in kilometres that a person can see from a height, h, in kilometres above the ground is $d = 111.7\sqrt{h}$. Find the height in metres that would allow a person to see 75 kilometres.

4. The perimeter of an elliptical garden is given by $P = 2\pi\sqrt{(a^2 + b^2)/2}$, where a is the width of and b is the height of the ellipse. Determine a if $b = 6$ cm and $P = 20\pi$ cm.

5. The maximum distance, d, in kilometres that a person can see from a height, h, in kilometres above the ground is $d = 111.7\sqrt{h}$. Find the height in metres that would allow a person to see 75 kilometres.