Worded Inverse Proportion Problems

The shutter speed, S, of a camera varies inversely as the size of the aperture setting, f. When $f = 8,\ S = 125$.
(a) Find a formula for S in terms of f.
(b) Hence, or otherwise, calculate the value of S when $f = 4$.

The pressure of water from a hose is inversely proportional to the hose radius. For a hose of radius 2 cm, the water pressure is 40 Pa. What hose radius do you need for a pressure of 50 Pa?

The amount of diesel a van uses is inversely proportional to the number of miles it travels. When a van travels 320 miles, it uses 36 litres of diesel. How much diesel will it need to travel 200 miles?

In a science experiment, p is found to be inversely proportional to t. When $p = 42.8,\ t = 0.8$. Find t when $p = 23.6$. Give your answer to 2 decimal places.

The light intensity I on a surface is inversely proportional to the square of the distance x from the light source. When the surface is 6 cm from the light source, the intensity is 2400.
(a) Find the light intensity when the surface is 15 cm from the light source.
(b) If the light intensity is 600, how far is the surface from the light source?

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