

First Name: _____

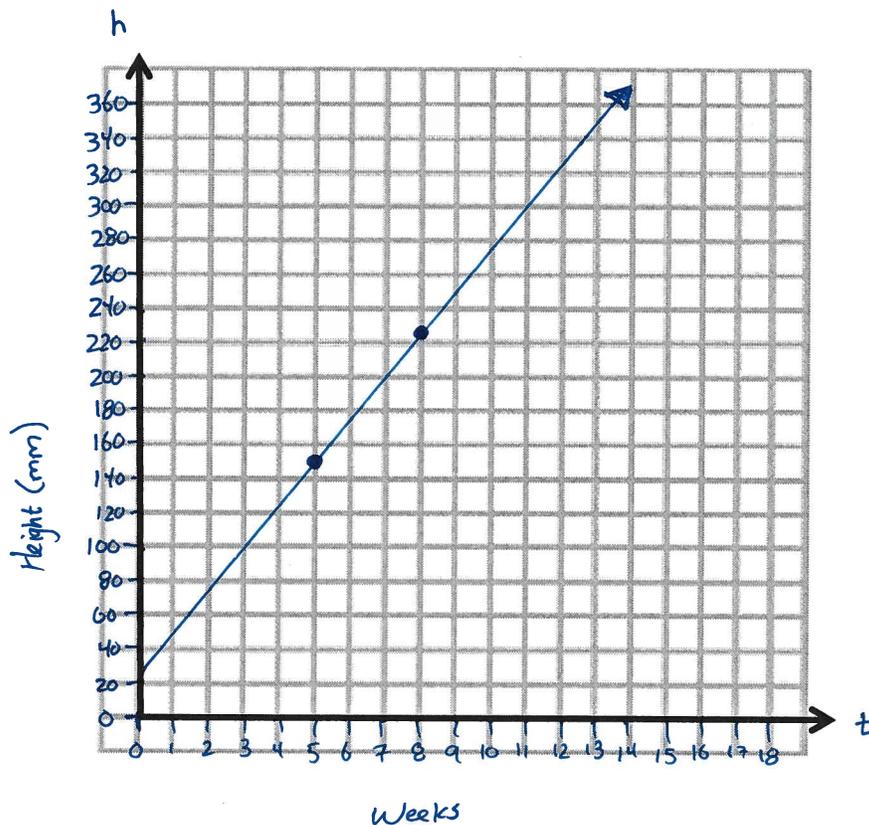
Last Name: _____

L42 - EQ - 7.5 Word Problems

Use the following information to answer Q1-Q4:

Mrs. Klevgaard loves to garden. She bought a bean plant and has been closely watching it over the last few weeks and noticed that it has been growing at a constant rate. In the fifth week she measures the plant and notes that it is 150 mm tall. In the eighth week she measures the plant and it is now 225 mm tall. The height of the plant, h , depends on the time, t , in weeks.

Q1: Graph the situation. (2 marks)



Q2: Write an equation in slope y-intercept form for the height of the plant, h , as it depends on time, t , in weeks. (2 marks)

$$(t, h) \rightarrow (5, 150) \text{ and } (8, 225)$$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{225 - 150}{8 - 5} = \frac{75}{3} = \boxed{25}$$

$$h = mt + b$$

$$h = 25t + b \quad \text{Use } (5, 150)$$

$$150 = 25(5) + b$$

$$150 = 125 + b$$

$$\begin{array}{r} -125 \\ -125 \\ \hline 25 = b \end{array}$$

$$25 = b$$

$$\rightarrow \boxed{h = 25t + 25}$$

Use the following information to answer Q1-Q4:

Mrs. Klevgaard loves to garden. She bought a bean plant and has been closely watching it over the last few weeks and noticed that it has been growing at a constant rate. In the fifth week she measures the plant and notes that it is 150 mm tall. In the eighth week she measures the plant and it is now 225 mm tall. The height of the plant, h , depends on the time, t , in weeks.

Q3: How tall, in mm, was the plant when Mrs. Klevgaard bought it? (1 mark)

$$h = 25t + 25$$

↓
Starting height of 25 mm.

Q4: Mrs. Klevgaard has read that in order to increase the bean production of the plant it should be pruned it when it is 340 mm tall. How long will it take for the bean plant to reach this height? Try to write your answer in weeks and days – ie. 3 weeks and 2 days... (2 marks)

$$\begin{aligned}
 h &= 25t + 25 \\
 340 &= 25t + 25 \\
 -25 & \quad -25 \\
 315 &= 25t \\
 \div 25 & \quad \div 25 \\
 \boxed{12.6 = t}
 \end{aligned}$$

So 12.6 weeks or 12 weeks + 0.6 weeks

↓
 $0.6 \text{ weeks} \times 7 = 4.2 \text{ days}$

So 12 weeks and 4 days

MARKING:

Beginning	0.0 – 3.0
Progressing	3.5 – 5.0
Competent	5.5 – 6.5
Exemplary	7.0