**Linear Approximation Entrance Ticket Answer Key**

**Exact student answers will vary. An example solution is provided.**

The data in the table below shows how the height of a plant changed over time.



|  |  |
| --- | --- |
| **Day** | **Height (cm)** |
| 4 | 9.2 |
| 6 | 9.9 |
| 8 | 11 |
| 11 | 12.3 |
| 13 | 13.1 |
| 15 | 14.5 |
| 18 | 15.8 |

Find the equation of a line that you think best follows the data. Show your work or include a justification of the values for your equation.

**Students should plot the data and draw a line of best fit. Check that students label the axes.**

**Select two points to find the slope: (0,7) and (11,12.3).**

**Slope =** $\frac{y\_{2}-y\_{1}}{x\_{2}-x\_{1}}=\frac{12.3-7}{11-0}=0.48 ^{cm}/\_{day}$

**The point (0,7) gives the y-intercept.**

**Slope-intercept form equation:** $y=0.48x+7$

**Where y is the height of the plant (cm) and x is day.**

Use your equation to determine how tall the plant will be after 25 days? Show work.

**Let** $x=25 days$

$$y=0.48 \left(25\right)+7=19 cm$$