

TT 15. *Foundations and Pre-calculus Mathematics 10* (Pearson), questions 4, 5, 6, 13, and 16 on pages 339 to 341 **Possible Solutions**

4. a) The road has a rise of 2 units and a run of 11 units right. The slope is $\frac{2}{11}$.
4. b) The road has a rise of 4 units and a run of 14 units right. The slope is $\frac{4}{14} = \frac{2}{7}$.
5. a) The line goes upward and towards the left, so the slope is negative.
5. b) The line goes upward and towards the right, so the slope is positive.
5. c) The line is a straight vertical line, so the slope is undefined.
5. d) The line is a straight horizontal line, so the slope is zero.
6. a) The rise is 3 units, the run is 6 units right, and the slope is $\frac{3}{6} = \frac{1}{2}$.
6. b) The rise is 2 units, the run is 8 units left, and the slope is $\frac{2}{-8} = -\frac{1}{4}$.
6. c) The rise is 3 units, the run is 4 units right, and the slope is $\frac{3}{4}$.
6. d) The rise is 6 units, the run is 2 units left, and the slope is $\frac{6}{-2} = -3$.
13. a) i)
$$\begin{aligned} m &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{6 - 2}{3 - 1} \\ &= \frac{4}{2} \\ &= 2 \end{aligned}$$
- ii)
$$\begin{aligned} m &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{5 - 1}{8 - 0} \\ &= \frac{4}{8} \\ &= \frac{1}{2} \end{aligned}$$

$$\begin{aligned}
 \text{iii) } m &= \frac{y_2 - y_1}{x_2 - x_1} \\
 &= \frac{(-8) - 4}{3 - (-1)} \\
 &= \frac{-12}{4} \\
 &= -3
 \end{aligned}$$

$$\begin{aligned}
 \text{iv) } m &= \frac{y_2 - y_1}{x_2 - x_1} \\
 &= \frac{(-5) - (-7)}{(-6) - (-12)} \\
 &= \frac{2}{6} \\
 &= \frac{1}{3}
 \end{aligned}$$

13. b) i) The slope of 2 indicates that the line rises to the right and is relatively steep.

ii) The slope of $\frac{1}{2}$ indicates that the line rises to the right and is relatively shallow.

iii) The slope -3 indicates that the line falls to the right and is relatively steep.

iv) The slope $\frac{1}{3}$ indicates that the line rises to the right and is relatively shallow.

$$\begin{aligned}
 \text{16. a) slope} &= \frac{\text{rise}}{\text{run}} \\
 &= \frac{1 \text{ in}}{4 \text{ ft} \times 12 \text{ in/ft}} \\
 &= \frac{1}{48}
 \end{aligned}$$

$$\text{16. b) } 6\frac{1}{2} \times 48 \text{ in} = 312 \text{ in}$$

$$\text{16. c) } 18 \text{ ft} \times 12 \text{ in} = 216 \text{ in}$$

$$\begin{aligned}
 \frac{1}{48} &= \frac{x}{216 \text{ in}} \\
 x &= \frac{1 \times 216 \text{ in}}{48} \\
 &= 4.5 \text{ in}
 \end{aligned}$$