

Slope Assignment

Multiple Choice

Identify the choice that best completes the statement or answers the question.

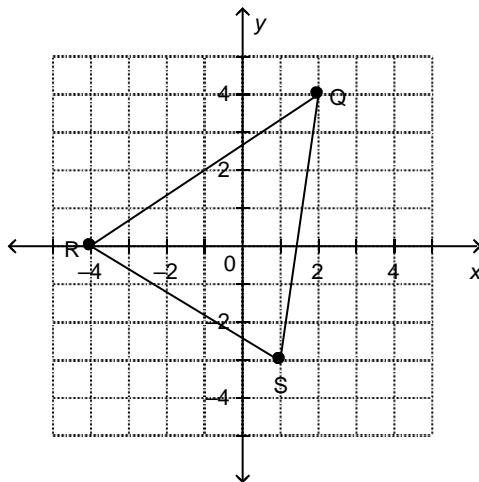
- _____ 1. A straight section of an Olympic downhill ski course is 34 m long. It drops 16 m in height. Determine the slope of this part of the course.
- | | |
|--------------------|--------------------|
| a. $-\frac{15}{8}$ | c. $-\frac{8}{17}$ |
| b. $-\frac{8}{15}$ | d. $-\frac{17}{8}$ |

Short Answer

- A road rises 9 m for every 60 m measured horizontally. Determine the slope of the road.
- A school plans to build a wheelchair ramp from the sidewalk to the front entrance of the school. The slope of the ramp must be $\frac{3}{32}$. The entrance to the school is 75 cm above the ground. What is the horizontal distance needed for the ramp?

Problem

- A guy wire helps to support a tower. One end of the wire is 25 m from the base of the tower. The wire has a slope of $\frac{8}{5}$. How high up the tower does the wire reach?
- Determine the slope of each line segment.



6. Four students determined the slope of the line through S(7, -5) and T(-15, 11). Their answers were: $\frac{11}{8}$,

$-\frac{11}{8}$, $\frac{8}{11}$, and $-\frac{8}{11}$.

Which answer is correct? How do you know?

Slope Assignment Answer Section

MULTIPLE CHOICE

1. ANS: B

SHORT ANSWER

2. ANS:
 $\frac{3}{20}$
3. ANS:
800 cm, or 8 m

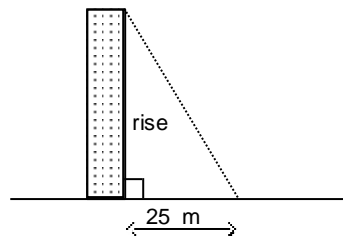
PROBLEM

4. ANS:
Sketch a diagram.

$$\text{Slope} = \frac{\text{rise}}{\text{run}}$$

The wire is 25 m from the base of the tower,
so the run is 25.

The slope is $\frac{8}{5}$. Write an equation.



$$\frac{8}{5} = \frac{\text{rise}}{25}$$

$$(25) \frac{8}{5} = (25) \frac{\text{rise}}{25}$$

$$\frac{200}{5} = \text{rise}$$

$$\text{rise} = 40$$

The guy wire is attached to the building 40 m above the ground.

5. ANS:
Count units to determine the rise and run.

From R to Q, both x and y are increasing, so the rise is 4 and the run is 6.

$$\text{Slope} = \frac{\text{rise}}{\text{run}}$$

$$\text{Slope} = \frac{4}{6}$$

$$\text{Slope} = \frac{2}{3}$$

Line segment RQ has slope $\frac{2}{3}$.

From R to S, y is decreasing, so the rise is -3 ; x is increasing, so the run is 5 .

$$\text{Slope} = \frac{\text{rise}}{\text{run}}$$

$$\text{Slope} = \frac{-3}{5}$$

$$\text{Slope} = \frac{-3}{5}$$

Line segment RS has slope $-\frac{3}{5}$.

From S to Q, both x and y are increasing, so the rise is 7 and the run is 1 .

$$\text{Slope} = \frac{\text{rise}}{\text{run}}$$

$$\text{Slope} = \frac{7}{1}$$

Line segment SQ has slope 7 .

6. ANS:

Subtract corresponding coordinates to determine the change in x and in y .

From S to T:

The rise is the change in y -coordinates.

$$\text{Rise} = 11 - (-5)$$

The run is the change in x -coordinates.

$$\text{Run} = -15 - 7$$

$$\text{Slope of ST} = \frac{11 - (-5)}{-15 - 7}$$

$$\text{Slope of ST} = -\frac{8}{11}$$

The slope of ST is $-\frac{8}{11}$.

The correct answer is $-\frac{8}{11}$.