Discovering the Slope Formula #2

1. Plot the following points and draw the segment created by joining the points.

(a) A(-2, 4) B(6, -4) (b) C(3, -3) D(1, 5)

(c) E(-3, -2) F(1, 1) (d) G(2, 4) H(5, -1)

2. Determine the slope of each segment by counting rise and run.



We don’t want to plot points EVERY time we want to know slope. We can create a formula that uses two points to calculate the slope.



The points given here are: (-1, 4) and (1, 1).

Pretend there is a point where the two arrows meet.

This point is (-1, 1).
How can you use these 3 points to find the vertical distance (rise) and the horizontal distance (run)?

3. Try to create a formula that you can use to calculate the slope of each of the segments you drew above!

Practice with the Slope Formula #2

**Find the slope of a line passing through each of the following pairs of points.
State the answer in simplest form.**

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| 1.   | (-9, 8) and (0, 9) |

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| 2.   | (0, 6) and (5, -2) |

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| 3.   | (6, 0) and (0, -6) |

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| 4.   | (-4, 1) and (-8, -3) |

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| 5.   | (-9, 3) and (-8, -3) |

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| 6.   | (-4, 4) and (2, -3) |

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| 7.   | (5, -4) and (6, 9) |

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| 8.   | (-8, -5) and (0, 3) |

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| 9.   | (-1, -9) and (-6, -2) |

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| 10.   | (-3, 1) and (-1, -6) |

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| 11.   | (11, 17) and (-8, -18) |

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| 12.   | (-14, 18) and (8, 0) |

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| 13.   | (14, -19) and (-2, -13) |

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| 14.   | (-2, 14) and (-9, -17) |

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| 15.   | (-16, 5) and (-5, -5) |

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| 16.   | (-17, 7) and (9, -4) |

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| 17.   | (-49, -86) and (25, 93) |

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| 18.   | (-91, -20) and (-43, 3) |

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| a) The following graph shows the cost of renting a banquet hall. Initially the cost is $300 just for the hall. There is a per person cost in addition to the initial fee to cover the meal cost. |
| How much does it cost for each additional person who attends the event? This value is called the **rate of change**, and is a unit rate – in this case cost per person.Calculate the slope of this line.  |

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| b) The following graph shows the balance in Jenny’s bank account over 7 weeks. She started with $300 in her account but has been spending her money at a constant rate.  |
| How much did her account decrease by each week? This value is called the rate of change, and in this case is spending per week.Calculate the slope of this line.  |
| c) Molly is an antique hunter. Her father had found a unique gem years ago on the ground (it was free!!). Over time this item became more and more rare. The value for this item increased at a constant rate over the years and now, 30 years later, it is worth $6000. Each year the value increased by around $600. Calculate the slope of the line. |
| How much did this gem increase in value each year? This value is called the rate of change, and in this case is $ value per year.Calculate the slope of this line.  |