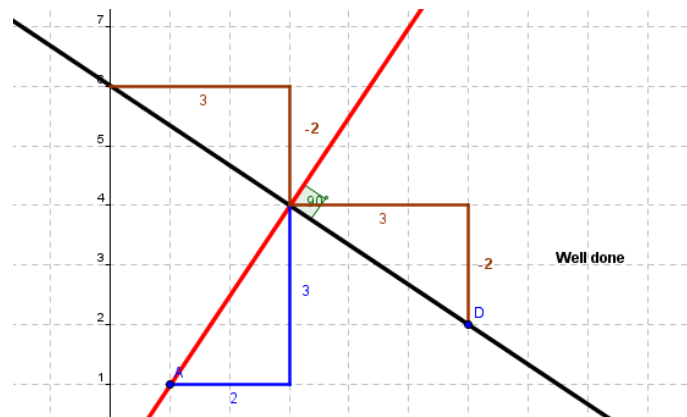# Student Activity Perpendicular Lines

Use in connection with the interactive file "Perpendicular Lines" on the Student's CD.

> **To investigate if we can find the relationship between perpendicular lines.**

The slider called "Step" is used to change the information on the screen.

To start set the slider to "Step = 1"

If the "rise" is really a "fall" (going down) then use a negative number for the fall

1. In terms of slope, write down the "run" of the line a._____

2. In terms of slope, write down the "rise" of the line a._____

3. **Write down the slope of a.**_____

4. Adjust the blue dot to make the line b perpendicular to a.

   In terms of slope, write down the "run" of the line b._____

5. In terms of slope, write down the "rise" of the line b._____

6. **Write down the slope of b.**_____

Move the "Step" slider to 2.

7. In terms of slope, write down the "run" of the line a._____

8. In terms of slope, write down the "rise" of the line a._____

9. **Write down the slope of a.**_____

10. Adjust the blue dot to make the line b perpendicular to a.

    In terms of slope, write down the "run" of the line b._____

11. In terms of slope, write down the "rise" of the line b._____

12. **Write down the slope of b.**_____

Move the "Step" slider to 3.

13. In terms of slope, write down the "run" of the line a._____

14. In terms of slope, write down the "rise" of the line a._____

15. **Write down the slope of a.**_____

16. Adjust the blue dot to make the line b perpendicular to a.

    In terms of slope, write down the "run" of the line b._____

17. In terms of slope, write down the "rise" of the line b._____

18. **Write down the slope of b.**_____

Move the "Step" slider to 4.

19. In terms of slope, write down the "run" of the line a._____

20. In terms of slope, write down the "rise" of the line a._____

21. **Write down the slope of a.**_____

22. Adjust the blue dot to make the line b perpendicular to a.

    In terms of slope, write down the "run" of the line b._____

23. In terms of slope, write down the "rise" of the line b._____

24. **Write down the slope of b.**_____

25. **What can you conclude from the answers above?**_____

    _____

    _____

    _____

    _____

26. **Move the "Step" slider to 5. Note:** Don't move the blue dot yet.

27. Write down the slope of a._____

28. Write down the slope of the line perpendicular to a._____

29. Adjust the blue dot to check your answer to the previous question.

30. Move the "Step" slider to 6, 7, 8, 9, 10 and 11 and check can you work out the slope perpendicular to a and then afterwards check your answers by moving the blue dot.

31. Move the "Step" slider to 12 and 13 see can you form a perpendicular slope at a point that isn't on the line. **Hint:** Look at the Rise and Run and your answer to Q.25