

Math 9 Linear Relations Lesson

- Two-variable linear relations using graphing, interpolation and extrapolation
- Two-variable continuous linear relations; includes rational coordinates
- Horizontal and vertical lines
- Graphing relation and analyzing
- Interpolating and extrapolating approximate values
- Spirit canoe journey predictions and daily checks

1. Plot the point $(2, -4)$

2. $y = 3x + 2$

a. Sketch this line

b. Slope?

c. y -intercept?

3. Sketch the line $y = -2x + 1$

4. $y = 3$

a. Sketch this line

b. What quadrants is this line in?

5. $x = -1$

a. Sketch the line

b. What quadrants is this line in?

6. Plot the point $(\frac{1}{2}, -3)$

7. Plot the point $(-2.\bar{3}, 2\frac{4}{5})$

8. Sketch $x = 0$

9. Sketch $y = \pi$

10. $y = 2x + 3$

a. Create a table of values

b. Sketch the graph

c. State the x-intercept

d. When $x = 4$, what is the value of y ?

11. Given $y = mx + b$ what is the meaning of:

a. m ?

b. b ?

12. Sketch $y = 2 - 3x$

13. Sketch $y = \frac{-2}{3}x + 3$

14. Sketch $y = 0.\bar{6} - \frac{x}{3}$

15. Sketch $x = \pi y$

16. Given the points $(0, 2)$ and $(8, 4)$

a. Find the slope

b. Find the line equation in slope-point form: $y - y_1 = m(x - x_1)$

c. Find the line equation in slope-intercept form: $y = mx + b$

17. Given the points $(3, -3)$ and $(-1, -1)$

a. Find the slope

b. Find the line equation in slope-point form: $y - y_1 = m(x - x_1)$

c. Find the line equation in slope-intercept form: $y = mx + b$

18. Given the point $(2\frac{1}{2}, -\frac{1}{2})$ and $(4, -2\frac{1}{4})$ find the slope

21. A canoe starts at 2 km away from home. Each day the canoe travels 3 more km away from home.

- a. Sketch a line graph that models the distance from home

- b. Model this graph as a line equation

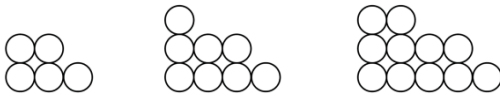
- c. How far away is the canoe from home after a week?

- d. Interpolate the distance from home after 2.5 days.

- e. Extrapolate the distance from home after a month (30 days).

- f. Why is interpolating data more accurate than extrapolating data?

22. See figures 1, 2, and 3 below respectively:



- a. How many circles are in figure 100?

- b. What figure number contains 131 circles?

23. 10, 7, 4, 1, -2, ... Find the 100th number