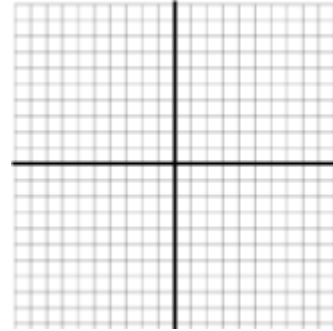


Slope-Point Form

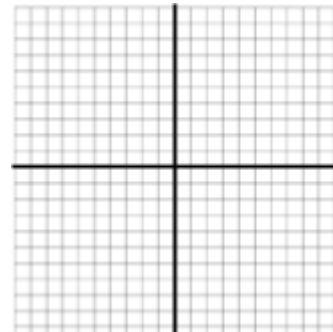
Show You Know

Ex. 1

- a) Use slope-point form to write an equation of the line through $(3, -4)$ with slope 2. Sketch a graph of the line.



- b) Express the equation in slope-intercept form, $y = mx + b$. Sketch a graph of this line.



- c) Compare your graphs.

Ex. 2

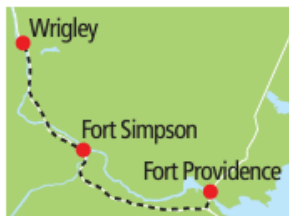
Use slope-point form to write an equation of the line through $(-5, 2)$ and $(-2, 1)$. Explain your steps.

Then, write the equation in general form, $Ax + By + C = 0$.

Slope-Point Form

Ex. 3

A family drives at a constant speed to visit relatives in Fort Providence, NT. When they start driving at 9:00 a.m., they are 540 km from Fort Providence. At 12:30 p.m., they reach Fort Simpson, located 225 km from Fort Providence.



- a) Write an equation that describes their distance, d , in kilometres, from Fort Providence in terms of t hours past 9:00 a.m.

- b) What time will the family reach Fort Providence?

Practice

1. Rewrite the following in slope-intercept form, $y = mx + b$, and general form, $Ax + By + C = 0$.

$y - 3 = \frac{2}{3}(x + 1)$	$y + 4 = -2(x - 1)$	$y = \frac{3}{4}(x - 4)$	$y - 1 + 3(x + 6)$
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Slope-Point Form

2. Identify the slope and a point on each line.

a) $y + 7 = 4(x - 3)$	b) $y - 5 = \frac{1}{3}(x + 5)$
c) $y = -2(x - 6)$	d) $y + 1 = x - 3$

3. Write the equation of each line in slope-point form. Then, convert each equation to general form.

a. slope of 0 and passing through $(-3, 1)$

b. same slope as $y = 2x + 2$ and passing through $(-1, 8)$

c. same slope as $5x + 2y - 10 = 0$ and passing through $(-1, 4)$

d. same y-intercept as $3x - y - 1 = 0$ and passing through $(2, -6)$

e. x-intercept of -5 and y-intercept of 3

f. same slope as $3x + 2y + 6 = 0$, with an x-intercept of 0

Slope-Point Form

4. A candle is lit at 1400 hours. At 1600 hours, it is 16 cm tall. At 2030 hours, it is 4.75 cm tall.
- Write a linear equation, in general form, with the points representing (hours, height).
 - Use the equation to determine the rate at which the candle burns per hour and its height at 1400 hours.
 - What does the slope of the line represent?
 - What does the y-intercept represent?