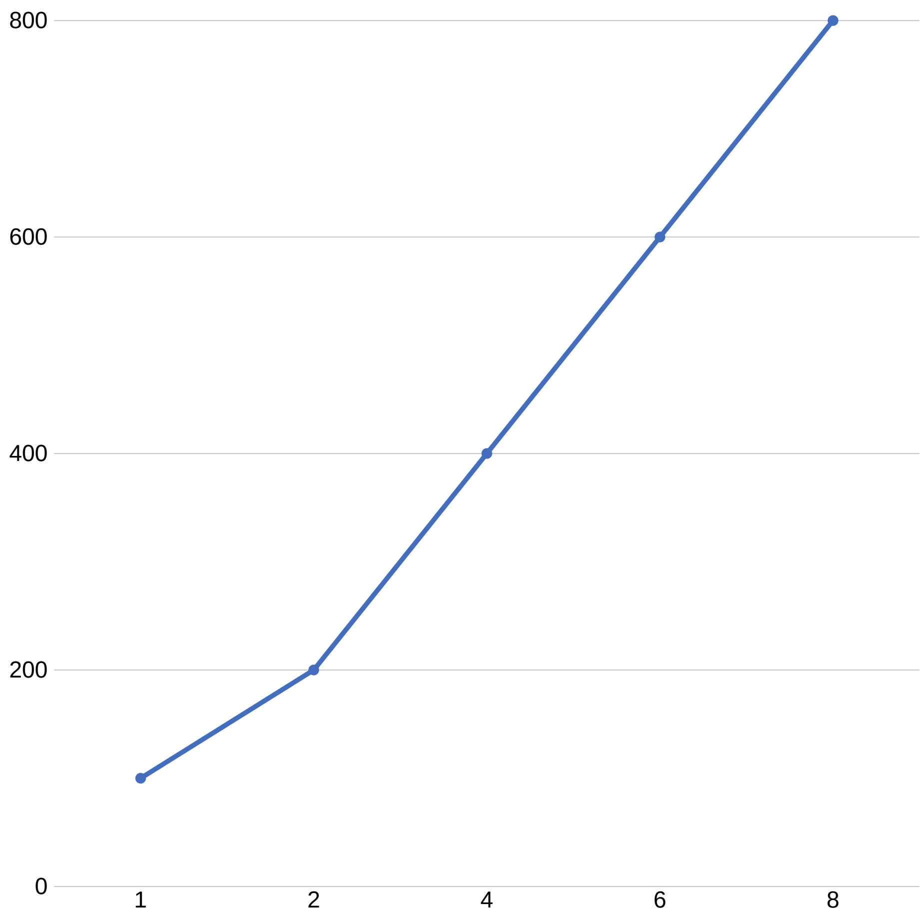
Lesson 5 - LINEAR RELATIONS

Grade 9

WWW.INTOMATH.ORG

if an object is moving at a constant speed v km/h, it will cover the distance D in kilometers over time t in hours; this could be modeled by equation: **D = vt**



A cyclist and a biker left from point A at the same time.
The cyclist was moving at a speed of 20 km/h and a biker was travelling at 40 km/h.
After two hours, the biker stopped to wait for the cyclist.

- graph the relationship
- after how many hours from the time they start moving will the cyclist and the biker meet?
- how far from point A will both of them be when the meet?

cyclist's trip could be modeled by the equation:

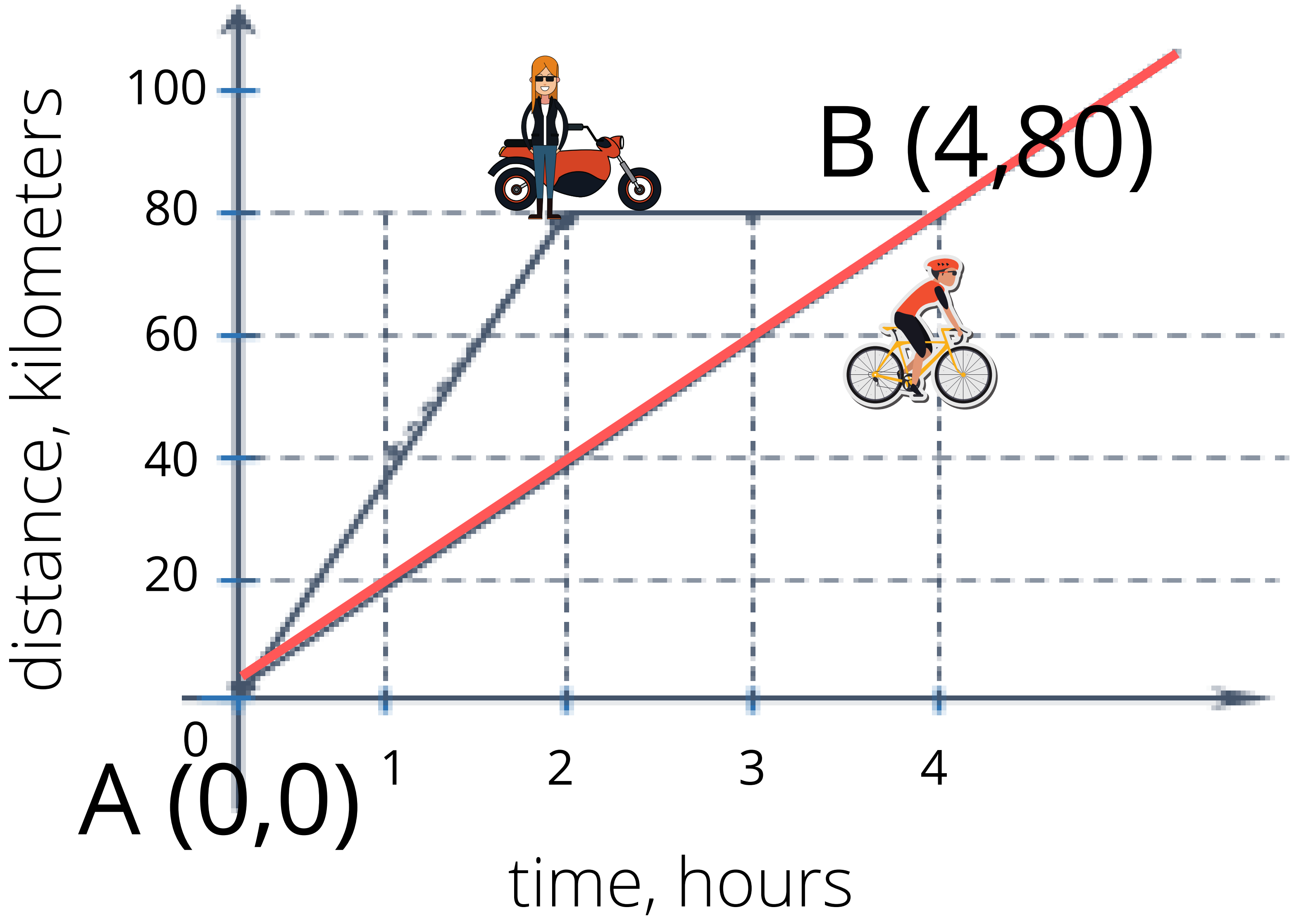
$D = 20t$

independent variable	Time, hrs	1	2	3	4
dependent variable	Distance, km	20	40	60	80

biker's trip could be modeled by the equation:

$D = 40t$

independent variable	Time, hrs	1	2	3	4
dependent variable	Distance, km	40	80	120	160



both trajectories are straight lines because both the cyclist and the biker are moving at constant speeds.

the line representing the cyclist is less steep because the speed is slower.

The horizontal line represents the stop over time.

the cyclist and the biker met again after 4 hours, at a distance 80 km away from the starting point.

MOVE ON TO GRADE 9 LESSON 6