

Name:

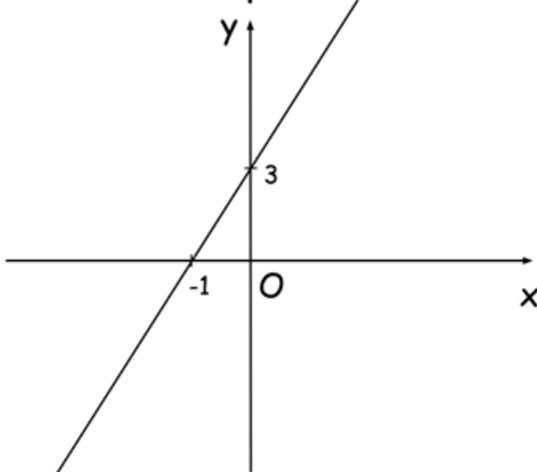
Date:

Thinking with Models _ Linear Functions

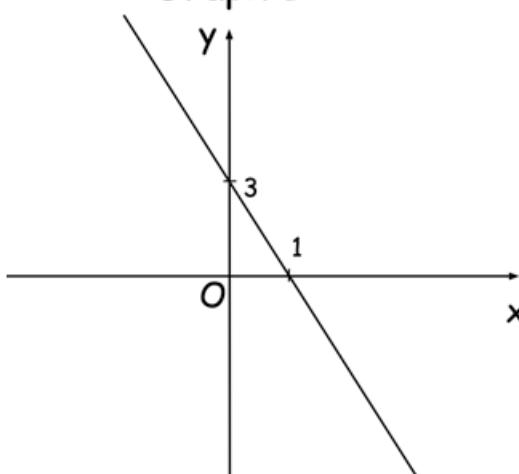
Assessment Criterion: A and C

1. Shown below are four straight line graphs.

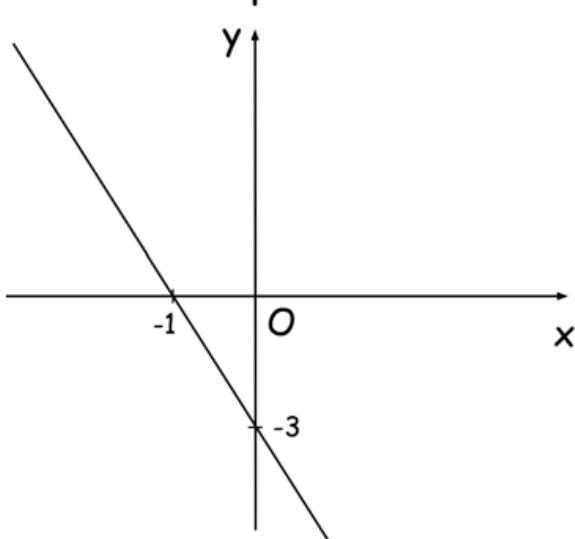
Graph A



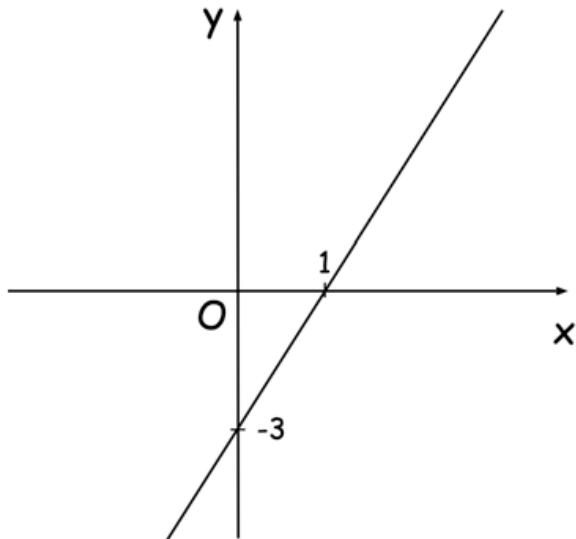
Graph B



Graph C



Graph D



Match each equation to its graph.

Equation	Graph
$y = 3x + 3$	
$y = 3x - 3$	
$y = -3x + 3$	
$y = -3x - 3$	

2. **Farming:** The information below was taken from an article that appeared in a newspaper.



FOCUS ON
PEOPLE



LAMECK AGUTA

reporting high yield
trials in soybean production. A farmer obtained 130
bushels of soybeans per acre when rainfall was 25
inches. Average yield
decreased by about 3
bushels per acre for each
1-inch decrease in rainfall.

Section B

Rainfall Affects Soybean Yield

Soybean production is dependent on rainfall. A farmer obtained 130 bushels of soybeans per acre when rainfall was 25 inches. Average yield decreased by about 3 bushels per acre for each 1-inch decrease in rainfall.



- i) Use the information to write a linear model for soybean field.

- ii) Use the model to find the soybean yield for a rainfall of 10 inches.

3. The equations of four lines are given below.

Line A $y = 4x + 1$

Line B $y + 2x = 8$

Line C $y = 9 - 2x$

Line D $y - 3x = 3$

Which lines go through the point (2, 9)?

4. In a chemistry experiment, a liquid is heated and the temperature at different times recorded.

The table of results for one student is shown.

Time (Minutes)	2	4	6	9
Temperature (C^0)	30	40	50	65

a) Find a model for $T(x)$, the temperature with respect to time, for these data.

b) Use the model to predict: i the temperature of the liquid after 8 minutes ii the time taken for the liquid to reach $57^{\circ}C$.