

ALTC

PROJECT EVIDENCE: ADEPT

URSULA

Creation Date: 05 November 2010

Lesson Plan and Materials

9 Maths – Functions Revision
Tuesday Week 5
Period 5-6 (70 mins)

Greet and Seat	10 mins
<ul style="list-style-type: none">- Line up outside- Instructions – come in and stand behind desks (in seating plan)- (may need to move depending on permission forms)- Once seated, copying down lesson objectives and functions summary (1+2)	
Students copy down objectives and functions summary	10 mins
Complete function tables	
<ul style="list-style-type: none">- model first box- copy down (leave space between)- 2 minutes to try independently- Go through solutions	
Plotting Practice	10 mins
<ul style="list-style-type: none">- Re-write x and y directions above grid- Model two types of co-ordinates and plot- Students to pick 6 points on the graph – need 3 to win- Write co-ordinates on card- Model how to run game – with student in put- Continue with points	
Return to function tables and model plotting (students giving directions)	5 mins
Finish copying down functions summary	5 mins
Model finding rule – using counting and formula	10 mins
<ul style="list-style-type: none">- Hand out sheet – students complete side 1- Run through solutions on board	
Model sketching from rule	10 mins
<ul style="list-style-type: none">- Students complete side 2- Run through solutions on board	
If time – algebraic fractions revision (from revision test)	
Lesson summary	5 mins
<ul style="list-style-type: none">- Optional revision on board to right- Behaviour summary- Answer sheets available up the front for angles and factorisation	

BOARD LAYOUT - 9 MATHS

- objectives
- function notes
- function sheet
- revision questions

functions summary

- ① _____
- ② _____
- ③ _____
- ④ _____

function tables:

1. $y = x + 1$

x	y	(x,y)
0	1	
1	2	
2	3	

↕

2. $y = 2x + 3$

x	y	(x,y)
1	5	
2	7	
3	9	

↕

3. $y = 3x - 7$

x	y	(x,y)
3	2	
4	5	
5	8	

brush-ups

$x:$ \leftarrow \rightarrow $+$
 $y:$ \uparrow \downarrow $-$

$(x,y) \dots \dots$
 $\dots \dots$

worksheet

1. find gradient of the following (check!) $x4$
2. gradient rule $\frac{y_2 - y_1}{x_2 - x_1}$ $x6$ (x,y) (x,y)
3. sketch from rule $x6$
 - $y = \frac{1}{2}x + 3$ $y = \frac{2}{3}x - 5$
 - $y = -\frac{3}{4}x + 5$ $y = 3x - 2$
 - $y = 2x + 4$ $y = 3 - 2x$

OPTIONAL

- angles worksheet
- compasses worksheet
- number of faces of a prism
- number of faces of a pyramid
- angles: Q1 worksheet
- PS15 P149
- PS16 P149
- factors: P2 P44
- PS13 P143

worksheet solutions
 algebraic fractions
 revision.
 (revision sheets)

angles

number of degrees in ...

right angle



90°

straight



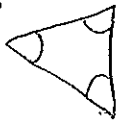
180°

revolution



360°

triangle



180°

quadrilateral



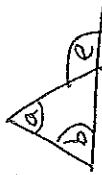
360°

co-interior



$a + b = 180$

exterior



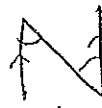
$a + b = c$

matching angles...

opposite



alternate



corresponding



factorisation

type 1: simple

$$\frac{3ab^2}{12b}$$

→ choose HCF: 3

→ expand: $\frac{3 \times 4 \times a \times b \times b}{3 \times 4 \times b \times b}$

→ simplify: $= \frac{a \times b}{4}$

$$= \frac{ab}{4}$$

type 2: multiplying with brackets

$$\frac{3(x+1)}{2} \times \frac{5}{2(x+1)}$$

→ combine and expand

$$= \frac{3 \times (x+1) \times 5}{2 \times 2 \times (x+1)}$$

→ simplify

$$= \frac{3 \times 5}{2 \times 2}$$

$$= \frac{15}{4}$$

type 3: division sign

$$\frac{3(x+1)}{2} \div \frac{2(x+1)}{5}$$

→ make ÷ a × and flip second fraction

$$= \frac{3(x+1)}{2} \times \frac{5}{2(x+1)}$$

→ follow steps for type 2

$$= \frac{3(x+1) \times 5}{2 \times 2 \times (x+1)}$$

$$= \frac{3 \times 5}{2 \times 2}$$

linear functions

1. $y = mx + c$

→ $m = \text{gradient}$ (rise or slope)

→ $c = y\text{-intercept}$.

2. plotting functions.

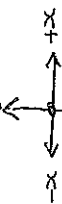
a. substitute x values into table to find y values.

1	2
0	1
1	2

b. plot co-ordinates (x, y).

- x = horizontal

- y = vertical



c. draw line through points.

3. finding rules from graph

a. find gradient (m)

- count squares for $\frac{\text{rise}}{\text{run}}$

- $\frac{y_2 - y_1}{x_2 - x_1} \rightarrow \text{use } (x_1, y_1) \text{ and } (x_2, y_2)$

b. read y-intercept (c) off graph

c. write into $y = mx + c$

4. sketching graphs from a rule

a. read m and c from rule

b. mark c on graph (y-axis)

c. count rise and run - mark point

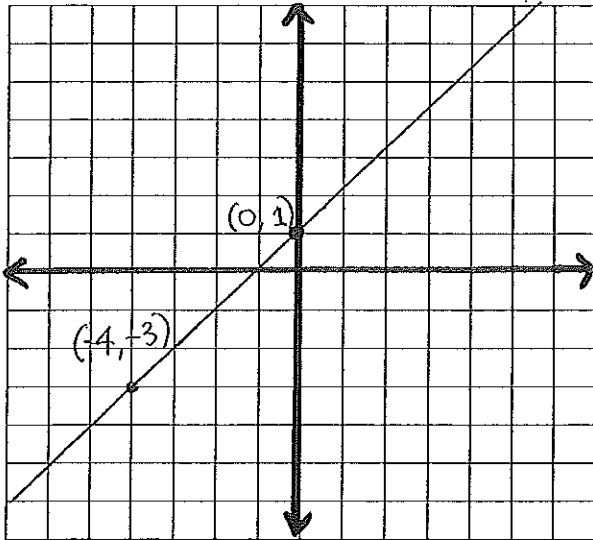
d. join points with a line

Name: _____

FUNCTIONS REVISION

Finding Rules in the form $y = mx + c$

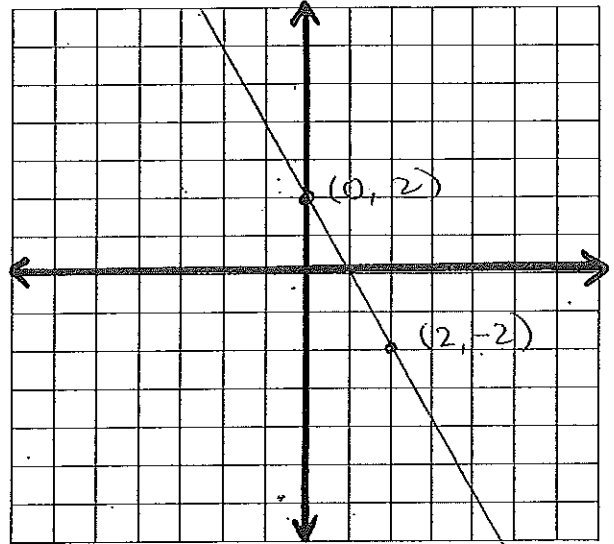
Find m and c to state the rule for the following...



$m =$

$c =$

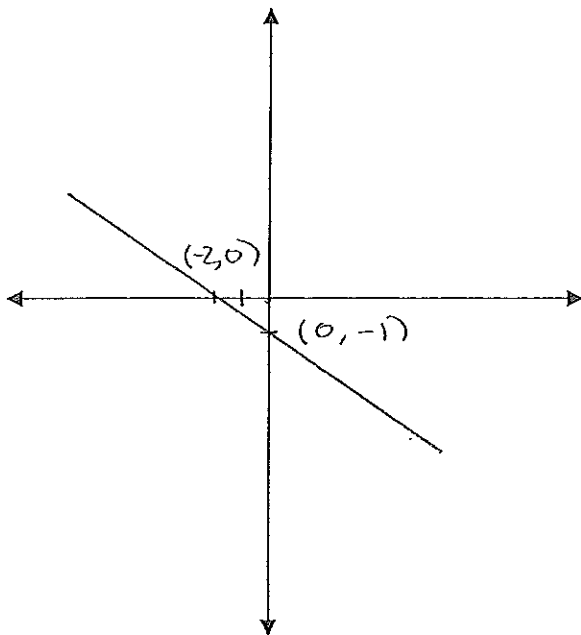
$y =$



$m =$

$c =$

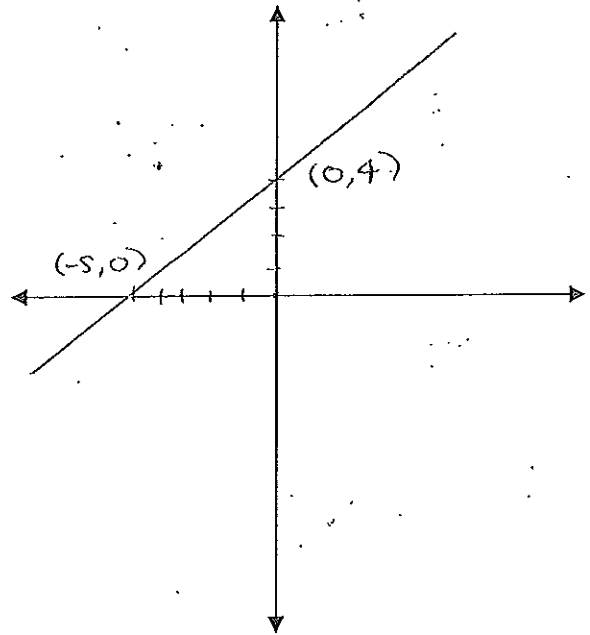
$y =$



$m =$

$c =$

$y =$

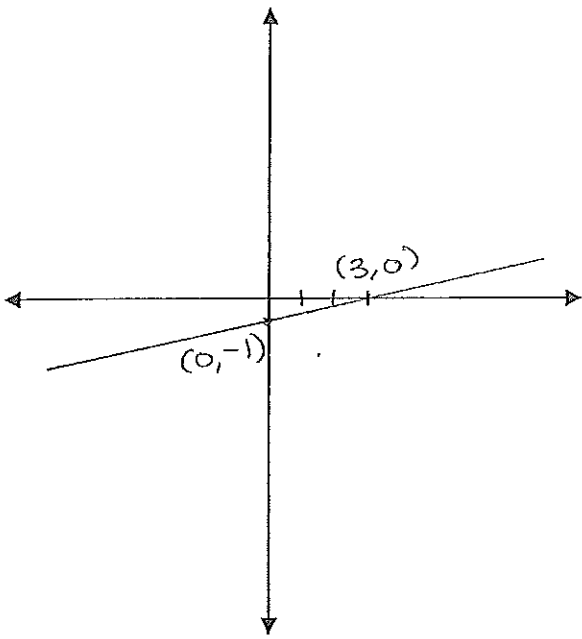


$m =$

$c =$

$y =$

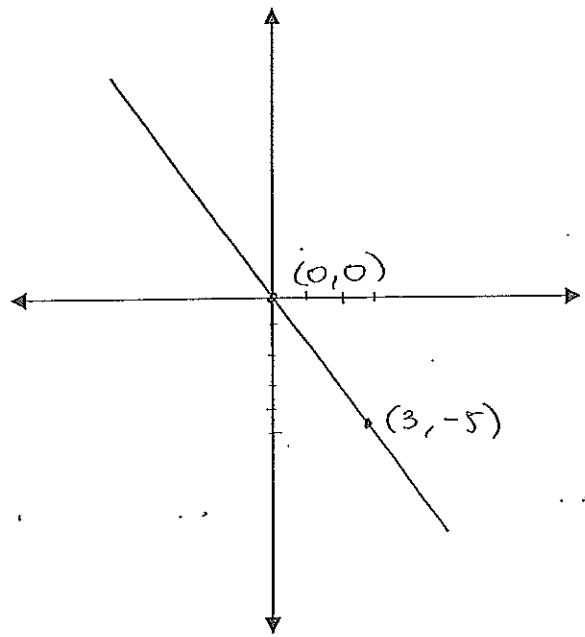
Name: _____



$m =$

$c =$

$y =$



$m =$

$c =$

$y =$

Find the gradient of the line passing through the following co-ordinates...

1. (2, 3) and (4, 0)

$m =$

2. (3, 5) and (8, 8)

$m =$

3. (-1, 4) and (3, -3)

$m =$

4. (-3, -1) and (-1, 3)

$m =$

5. (2, -1) and (4, 2)

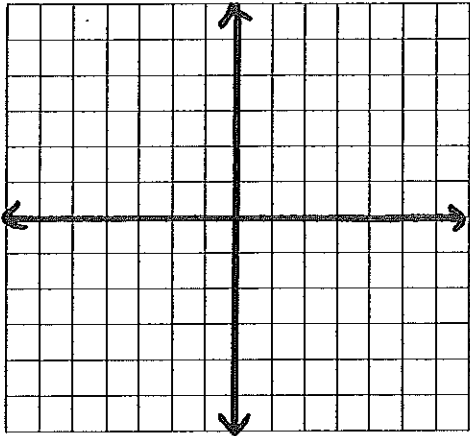
$m =$

6. (2, 8) and (10, 15)

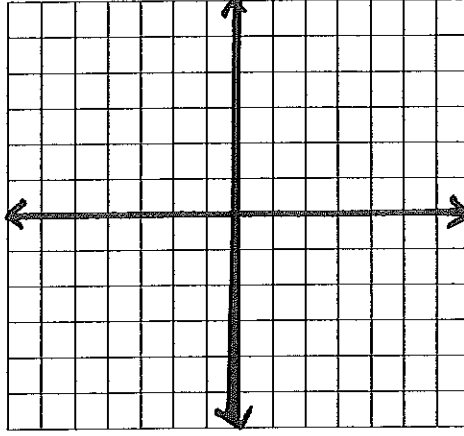
$m =$

Sketch the functions for the following values

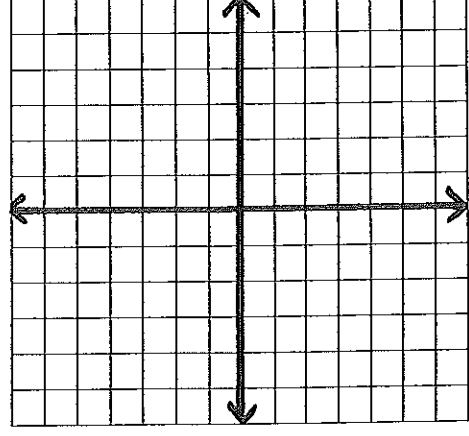
$$m = \frac{1}{2} \quad c = 2$$



$$m = -\frac{1}{2} \quad c = 2$$



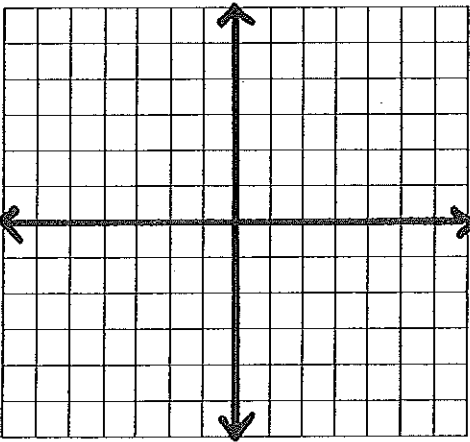
$$m = \frac{3}{4} \quad c = -4$$



Sketch the graphs for the following rules

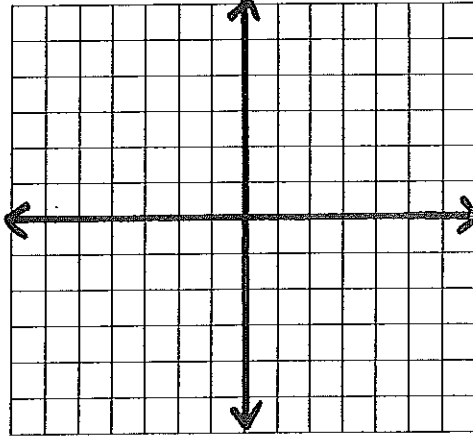
$$y = \frac{1}{2}x + 3$$

$m = \quad c =$



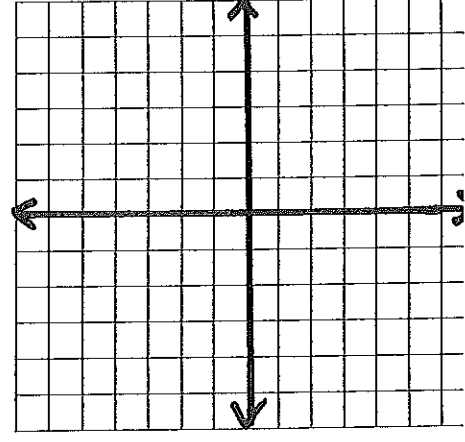
$$y = \frac{3}{5}x - 4$$

$m = \quad c =$



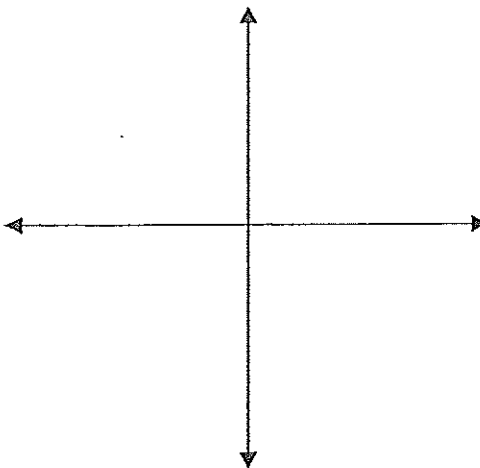
$$y = -\frac{3}{4}x + 5$$

$m = \quad c =$



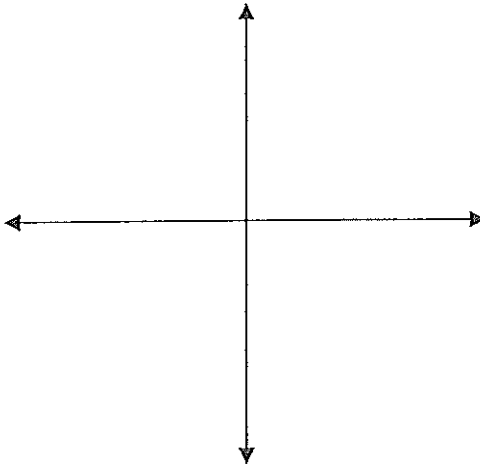
$$y = 3x - 2$$

$m = \quad c =$



$$y = 2x + 4$$

$m = \quad c =$



$$y = 3 - 2x$$

$m = \quad c =$

