

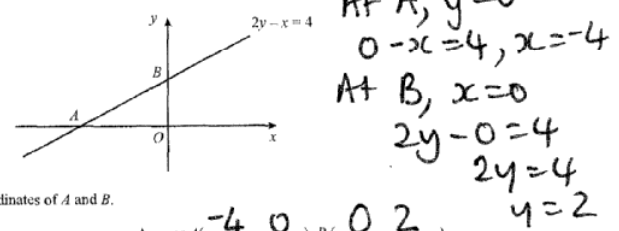
1. (a) Factorise $7x + 14$ $7(x+2)$

(b) Expand and simplify $4(m+3) + 3(2m-5)$
 $4m+12+6m-15 = 10m-3$

(c) Solve the simultaneous equations:
 $2x + 3y = 9$ $\times 3$ $6x + 9y = 27$ (SSSS)
 $3x + 2y = 1$ $\times 2$ $6x + 4y = 2$
 $\underline{5y = 25}$
 $y = 5$
 $2x + 15 = 9$
 $2x = -6$
 $x = -3$
 You must show all your working. Do not use trial and improvement.
 Answer $x = -3$, $y = 5$

(d) Factorise $x^2 + 6x - 16$
 Answer $(x+8)(x-2)$

2. A sketch of the line $2y - x = 4$ is shown. The line crosses the axes at A and B.



(a) Calculate the coordinates of A and B.
 Answer A(-4, 0), B(0, 2)

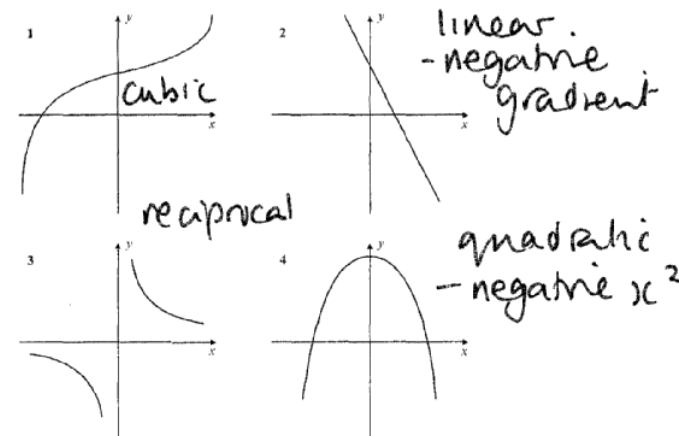
(b) Calculate the gradient of the line AB.
 Answer 0.5

$\frac{\text{vertical change}}{\text{horizontal change}} = \frac{2}{4} = 0.5$

or $\frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - 0}{0 - (-4)} = \frac{2}{4} = 0.5$

3. Match each of the sketch graphs to one of these equations.

A $y = 2 - 2x$ B $y = 2x + 2$ C $y = 3 - x^2$ D $y = x^3 + 4$ E $y = \frac{2}{x}$



Graph 1 represents equation D
 Graph 2 represents equation A
 Graph 3 represents equation E
 Graph 4 represents equation C

Difference of 2 squares

4. (a) Factorise $m^2 - 49$
 Answer $(m-7)(m+7)$

(b) Solve these simultaneous equations
 $5x + 3y = 18$ $\times 2$ $10x + 6y = 36$ + SASA
 $3x - 2y = 7$ $\times 3$ $9x - 6y = 21$
 $\underline{19x = 57}$
 $x = 3$
 Answer $x = 3$, $y = 1$

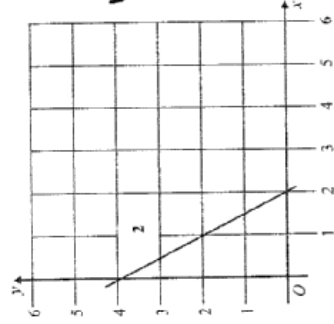
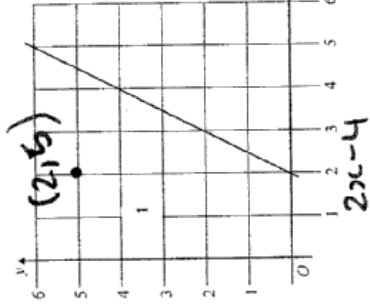
if $x = 3$,
 $15 + 3y = 18$
 $3y = 3, y = 1$

5. Match each of the shaded regions to one of these inequalities.

A $y \leq -\frac{1}{2}x + 2$ D $y \geq 2x - 4$

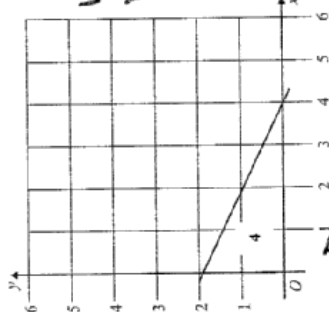
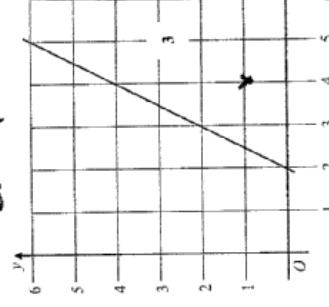
B $y \leq \frac{1}{2}x + 2$ E $y \leq 2x - 4$

C $y \geq -2x + 4$



intercept 4
negative
gradient.
 $-2x + 4$

same line
different
regions
 $x=2$
 $y=5$
 $-5 > 4-4$



intercept = 2
negative
gradient.
 $-\frac{1}{2}x + 2$

Region 1 D
Region 2 C
Region 3 E
Region 4 A

$y \leq 2x - 4$
 $1 \leq 8 - 4$
 $1 \leq 7$