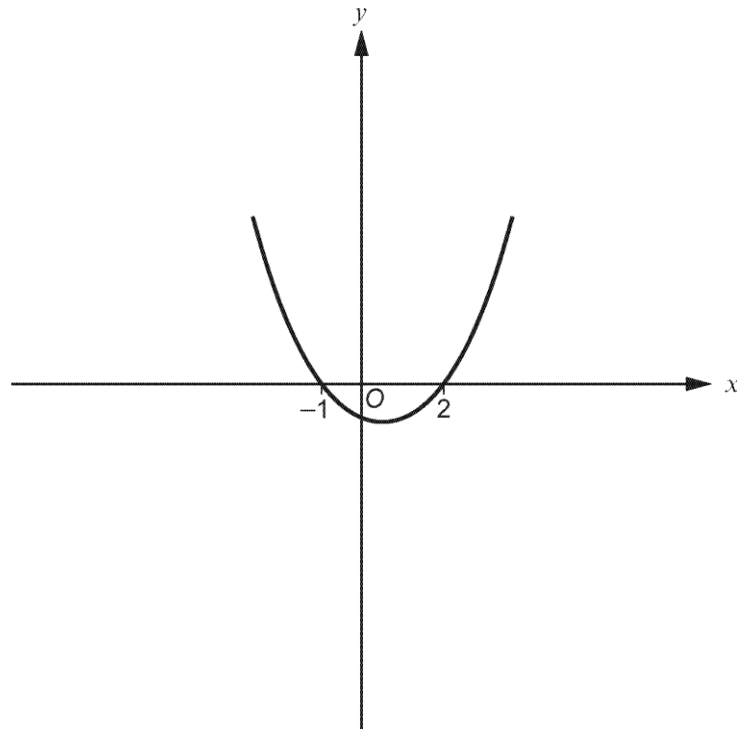


Trawsffurfiadau Ffwythiannau

1.

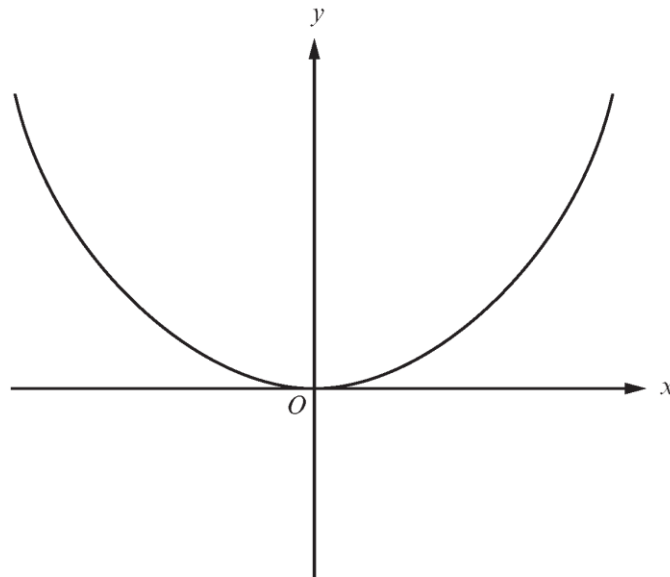
Mae'r graff isod yn dangos braslun o'r gromlin $y = f(x)$.
Ar yr un diagram, brasluniwch y gromlin $y = f(x + 4)$.
Rhaid i chi ddangos yn glir lle mae'r gromlin yn croesi'r echelin- x .

[2]



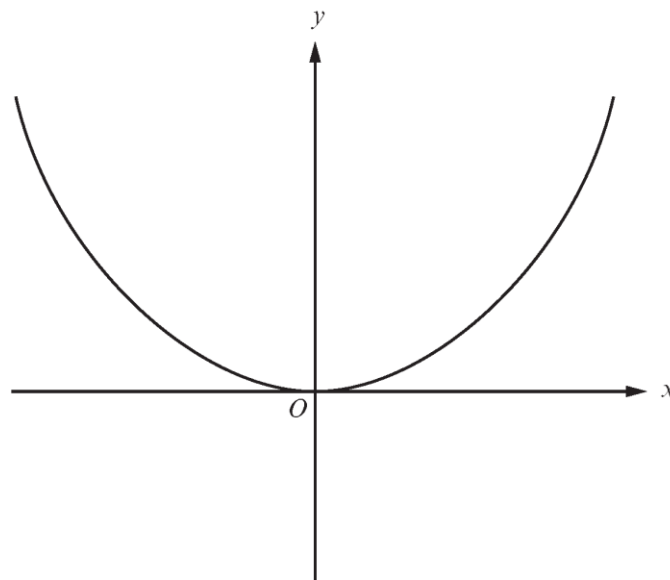
2.

- (a) Mae'r diagram yn dangos braslun o $y = x^2$.
Ar yr un diagram, brasluniwch y gromlin $y = x^2 + 3$.
Mae'r diagram yn glir gyfesurynnau un pwynt lle mae'r gromlin yn cwrdd ag echelin neu'n croesi echelin.



[2]

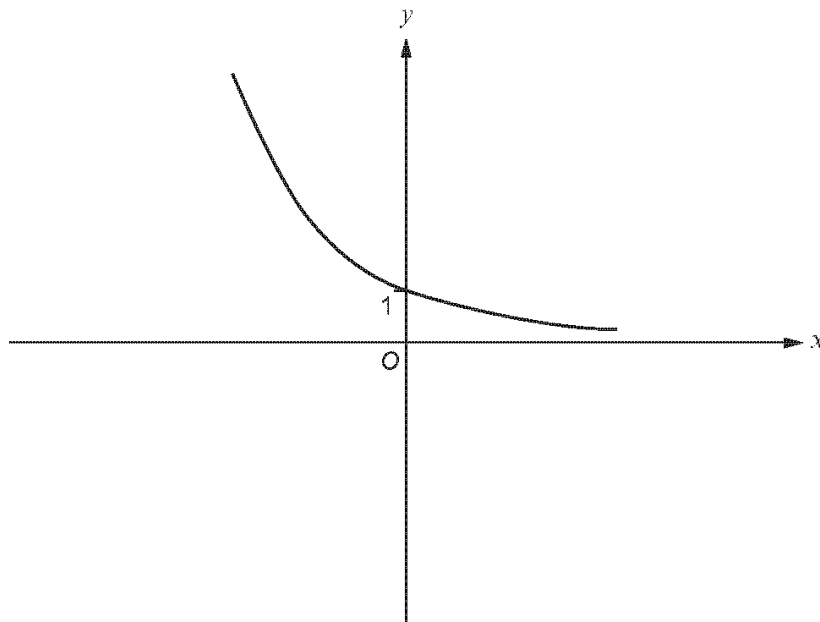
- (b) Mae'r diagram yn dangos braslun o $y = x^2$.
Ar yr un diagram, brasluniwch y gromlin $y = (x + 3)^2$.
Mae'r diagram yn glir gyfesurynnau un pwynt lle mae'r gromlin yn cwrdd ag echelin neu'n croesi echelin.



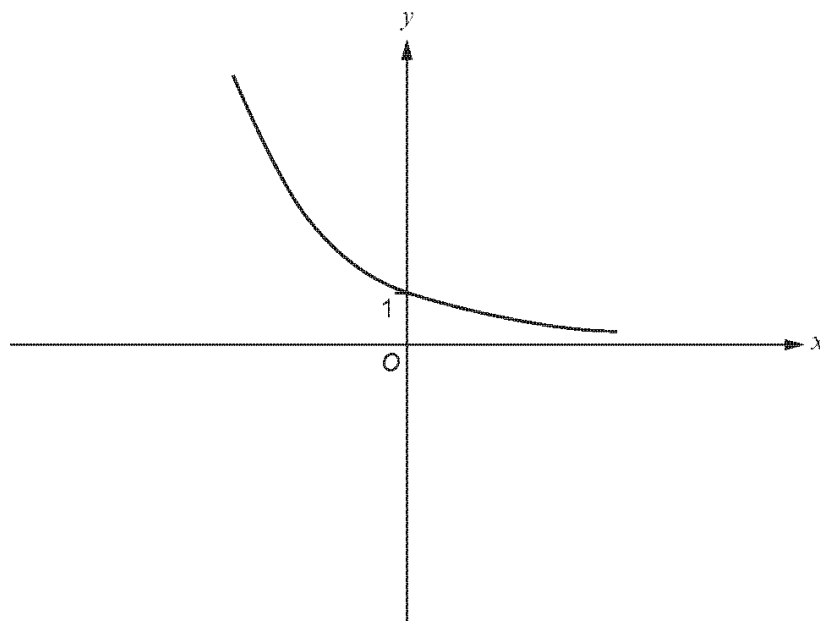
[2]

3.

- (a) Mae'r diagram yn dangos braslun o $y = f(x)$.
Ar yr un diagram, brasluniwch y gromlin $y = f(x) - 5$.
Marciwch yn glir werth y yn y pwynt lle mae eich cromlin yn croesi'r echelin- y . [2]

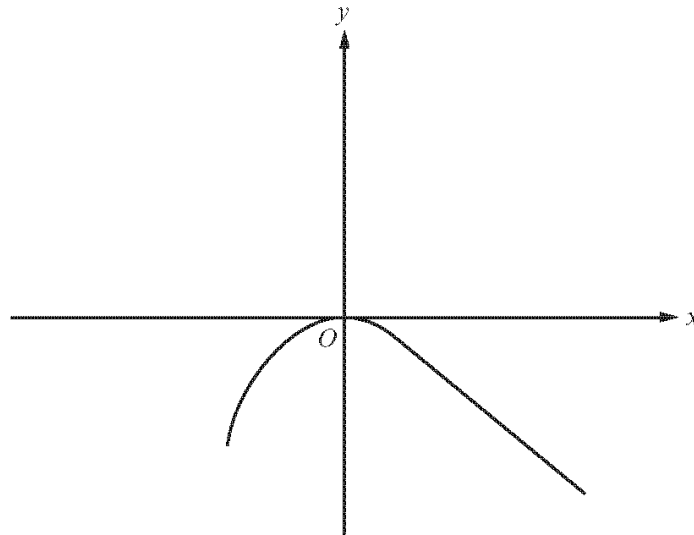


- (b) Mae'r diagram hwn eto yn dangos braslun o $y = f(x)$.
Ar y diagram hwn, brasluniwch y gromlin $y = -f(x)$.
Marciwch yn glir werth y yn y pwynt lle mae eich cromlin yn croesi'r echelin- y . [2]



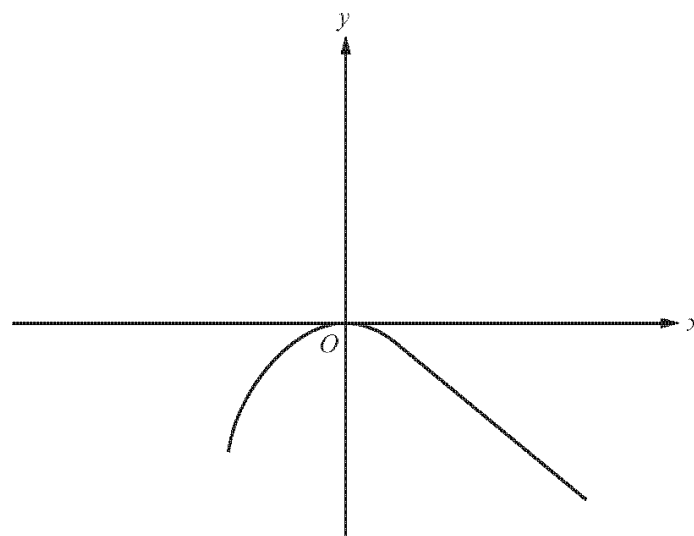
4.

- (a) Mae'r diagram isod yn dangos braslun o $y = f(x)$.
 Ar yr un diagram, brasluniwch y gromlin $y = f(x + 3)$.
 Marciwch yn glir gyfesurynnau'r pwynt lle mae'r gromlin hon yn cyffwrdd ag echelin. [2]



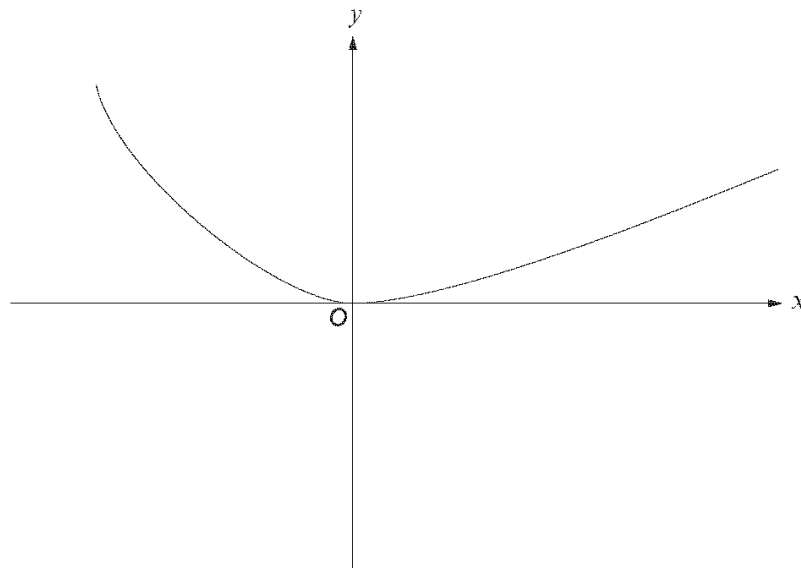
- (b) Mae'r diagram isod yn dangos braslun arall o $y = f(x)$.
 Ar yr un diagram isod
- brasluniwch y gromlin $y = -f(x)$, yna
 - brasluniwch y gromlin $y = -f(x) + 2$.

Marciwch yn glir gyfesurynnau'r pwynt lle mae'r gromlin $y = -f(x) + 2$ yn cwrdd â'r echelin-y. [3]

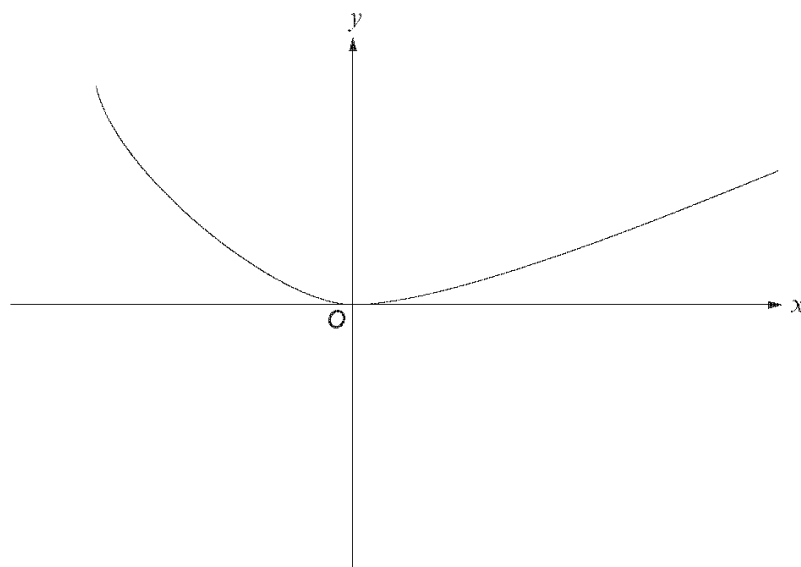


5.

- (a) Mae'r diagram yn dangos braslun $y = f(x)$.
Ar yr un diagram, brasluniwch y gromlin $y = f(x - 4)$.
Marciwch yn glir gyfesurynnau'r pwynt lle mae'r gromlin hon yn cyffwrdd ag echelin. [2]



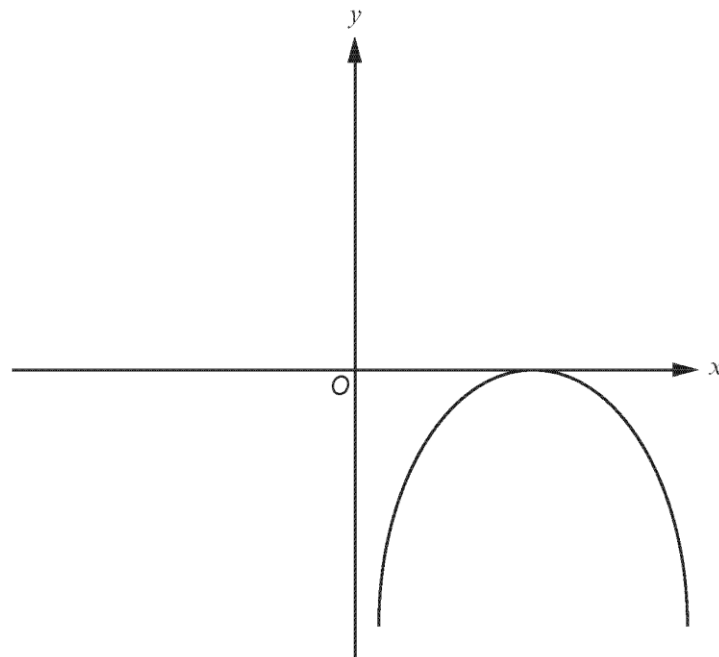
- (b) Mae'r diagram yn dangos braslun $y = f(x)$.
Ar yr un diagram, brasluniwch y gromlin $y = -f(x) + 2$.
Marciwch yn glir gyfesurynnau'r pwynt lle mae'r gromlin hon yn cwrdd â'r echelin-y. [3]



6.

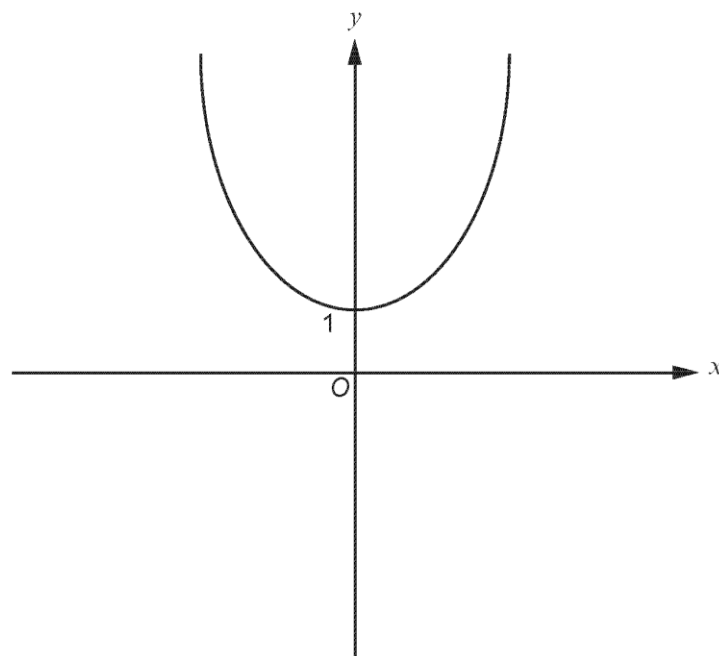
- (a) Mae'r diagram hwn yn dangos braslun o'r gromlin $y = f(x)$.
Ar yr un diagram, brasluniwch y gromlin $y = -f(x)$.

[1]



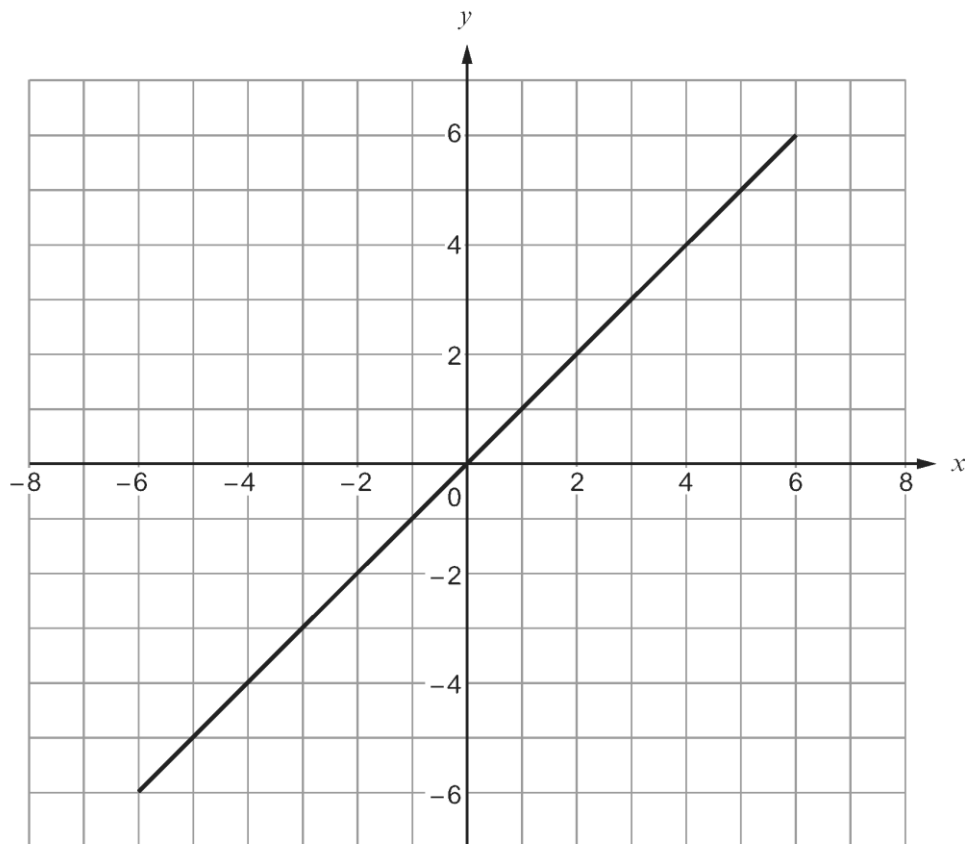
- (b) Mae'r diagram hwn yn dangos braslun o'r gromlin $y = g(x)$.
Ar yr un diagram, brasluniwch y gromlin $y = g(2x)$.

[1]



7.

Mae graff yr hafaliad $y = x$ yn cael ei ddangos ar yr echelinau isod.



Eglurwch sut byddech chi'n defnyddio'r graff $y = x$ i luniadu graffiau'r hafaliadau canlynol.

(a) $y = x + 3$

[1]

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(b) $y = -x$

[1]

.....

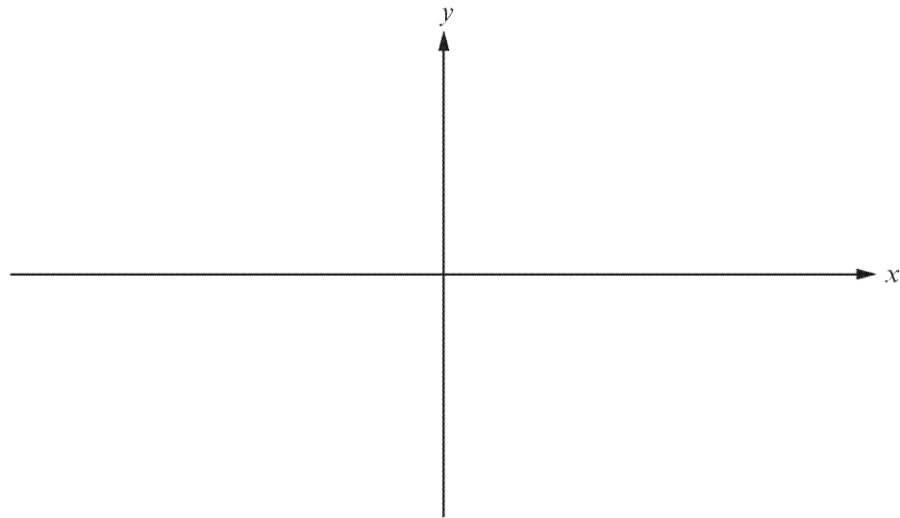
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8.

- (a) Defnyddiwch yr echelinau isod i fraslunio $y = x^2 - 9$.
Marsiwch yn glir gyfesurynnau unrhyw bwynt lle mae'r gromlin hon yn cwrdd ag echelin. [3]



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- (b) Mae rhywun yn gofyn i Mari fraslunio $y = (x + 2)^2 - 9$.
Disgrifiwch sut gallai Mari ddefnyddio eich braslun o (a) i fraslunio'r gromlin hon. [2]

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Cynllun Marcio

1.

Translation horizontally to the left (-5, 0) and (-2, 0) indicated correctly on the x-axis with the correct translation.	B1 B1 2	Clear intention SC1 for right shift <u>with</u> (3, 0) and (6, 0) indicated.
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2.

13.(a) Correct sketch (shift up) (0, 3) indicated on the correct sketch	B1 B1	Depends on the first B1. Dashes to indicate '3 notches' is insufficient
13.(b) Correct sketch (shift to left) (-3, 0) indicated on the correct sketch OR (0, 9) indicated on the correct sketch	B1 B1	Depends on the first B1.

3.

Unit 2 GCSE Maths June 2015 Higher Tier	T I C K	M A R K	Comment
15. (a) Sketch with downwards shift - 4 indicated on y-axis or (0, -4) given		B1 B1	Clear intention to draw same curve. Depends on correct shape of first curve.
(b) Reflection in x axis - 1 indicated on y-axis or (0, -1) given		B1 B1	Clear intention to reflect same curve. Depends on first B1.

4.

Linear GCSE Mathematics Higher Tier November 2015 Paper 1		FINAL MARK SCHEME Comments
16(a) Translation horizontally to the left Correct translation AND -3 indicated on the x-axis	B1 B1	SC1 for translation horizontally to the right AND 3 indicated on the x-axis
(b) Idea of reflection in x-axis	B1	May include an incorrect translation, but clearly there has been a reflection
Idea of vertical translation	B1	Allow 'up' or 'down'
Correct transformation with +2 indicated on the y-axis	B1 5	Previous B1 marks are independent of each other, but no FT CAO for correct transformation

5.

Methods in Mathematics June 2015 Unit 1 Higher Tier	Mark	Comment
19.(a) Transformation horizontally to the right Correct translation with (4,0) or 4 indicated correctly on the x-axis	B1 B1	SC1 for left shift with -4 indicated on the x-axis
(b) Idea of reflection in x-axis	B1	May include an incorrect translation, but clearly there has been a reflection
Idea of vertical translation	B1	Allow 'up' or 'down'
Correct transformation with (0,2) or 2 indicated on the y-axis	B1 5	

6.

15. (a) Sketch with reflection in x-axis. Vertex must touch the x axis.	B1	Clear intention shown (to draw curve of same size and shape). Must be a convex <u>curve</u> .
(b) Sketch with horizontal compression towards y-axis. Must pass through (0,1).	B1	Clear intention shown. Must be a convex <u>curve</u> .
	2	

7.

13.(a) Explains parallel with intersection y-axis at 3, e.g. 'same gradient with intersection at (y=)3'	E1	Must imply parallel and mention (vertical) translation Allow 'put the line up another 3 squares' Do not accept 'm=1, c=3' unless related to $y = x$,
(b) Reflection (in x-axis) or perpendicular (through the origin) or change the sign of the y-coordinate	E1	Accept use of knowledge ' $m \times -1/m = -1$ ', or ' $m_1 \times m_2 = -1$ ' Do not accept 'diagonally downwards', 'opposite (direction)', or 'reversed (direction)', or 'swap the coordinates' Allow 'same but decreasing instead of increasing (as it is minus)', 'rotate 90° (about the origin)', 'change the sign of one of the coordinates'
	2	

8.

(a) Correct sketch in 4 quadrants with -9 on the y-axis AND 3 & -3 on the x-axis	B3	B2 for an appropriate sketch in 4 quadrants with <u>either</u> -9 indicated (allow shown between -8 & -10) on the y-axis <u>OR</u> 3 & -3 indicated on the x-axis (ignore additional incorrect points indicated), or B2 for sketch only in 2 quadrants with -9 indicated on the y-axis AND -3 or 3 indicated on the x-axis OR B1 for an appropriate sketch in 4 quadrants without points indicated or with incorrect points indicated, or B1 for sketch only in 1 quadrant with -9 indicated (allow shown between -8 & -10) on the y-axis AND -3 or 3 indicated on the x-axis, or B1 for sketch only in 2 quadrants with -9 indicated on the y-axis <i>Penalise -1 if 'points' are joined with straight lines</i>
(b) Move horizontal (Translate) to the left 2	B2	Alone, with no other movements Allow descriptions such as 'move to the left 2', or 'move left along x-axis 2', 'shift -2 horizontally' B1 for move (translate) horizontally (left or right), allow use of descriptions such as 'sideways' or 'along x-axis' Allow B1 translation shown graphically, provided it is not derived from plotted points with -5 and 1 indicated on the x-axis