Hafaliadau Cydamserol

1.

Datryswch yr hafaliadau cydamserol canlynol gan ddefnyddio dull algebraidd (nid graffigol).
Rhaid i chi ddangos eich holl waith cyfrifo. [4]

$$4x - 3y = 11$$

$$6x - 2y = 9$$

....

....

....

....

....

....

....

....

....

....

2.

Datryswch yr hafaliadau cydamserol canlynol gan ddefnyddio dull algebraidd.
Rhaid i chi ddangos eich holl waith cyfrifo. [4]

$$3x + 5y = 6{\cdot}5$$

$$2x - 2y = -9$$

...

3.

Defnyddiwch ddull algebraidd i ddatrys yr hafaliadau cydamserol canlynol. [4]

$$5a + 7b = 63$$
$$10a - 4b = 18$$

4

4.

Mae Levi yn berchen ar far byrbryd.
Mae’r brechdanau i gyd â’r un pris ac mae’r diodydd i gyd â’r un pris.

Yn ystod awr gyntaf y dydd, mae Levi’n gwerthu 3 brechdan a 2 ddiod sy’n costio £7.20 i gyd.
Yn ystod ail awr y dydd, mae Levi’n gwerthu 2 frechdan a 5 diod sy’n costio £8.10 i gyd.

Mae Levi’n ysgrifennu’r hafaliadau cydamserol canlynol:

$$3x + 2y = 720$$
$$2x + 5y = 810.$$

(a) Beth mae’r x a’r y yn eu cynrychioli yn hafaliadau Levi? [2]

Mae x yn cynrychioli ....

Mae y yn cynrychioli ....

(b) Datryswch yr hafaliadau cydamserol gan ddefnyddio dull algebraidd. [4]

....

....

....

....

....

....

....

....

....

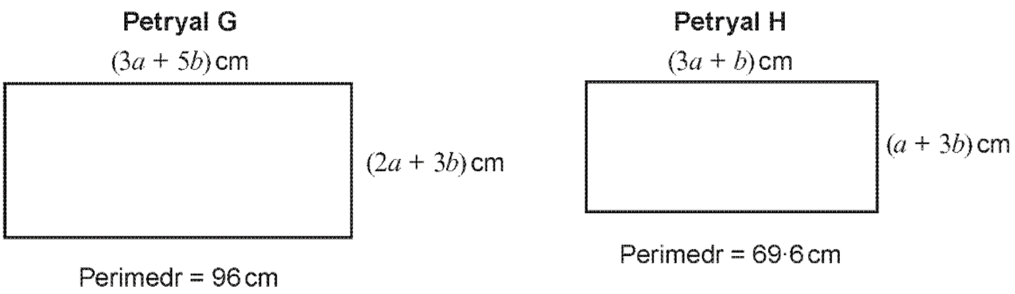
....

....

....

5.

Mae dimensiynau a pherimedrau dau betryal, G a H, yn cael eu dangos isod.



Nid yw'r diagramau wedi'u lluniadu wrth raddfa

Mae Freya wedi ysgrifennu hafaliad ar gyfer petryal G:

$$10a + 16b = 96$$

(a) Ysgrifennwch hafaliad ar gyfer petryal H. [1]

....

....

(b) Defnyddiwch ddull algebraidd i gyfrifo a a b.
Trwy hynny, cyfrifwch ddimensiynau petryal H. [5]

....

....

....

....

....

....

....

....

....

....

....

....

....

Hyd petryal H yw .... cm

Lled petryal H yw .... cm

6.

Mae'r teulu Davies eisiau prynu dodrefn gardd. Mae eu canolfan arddio leol yn stocio'r brand arbennig yr hoffen nhw ei gael.

Pris 1 fainc ardd a 4 cadair yw £310.
Pris 2 fainc ardd a 3 cadair yw £345.

Mae gan y teulu Davies £450 i'w wario.

Oes ganddyn nhw ddigon o arian i brynu 2 fainc ardd a 5 cadair?

Rhaid i chi ddangos eich holl waith cyfrifo. [5]

7.

Aeth Iona a Dafydd i siopa.
Prynodd y ddau ohonyn nhw boteli o'r un cordial cyrens duon ac o'r un dŵr soda.
Prynodd Iona 2 fotel o gordial cyrens duon a 3 potel o ddŵr soda.
Prynodd Dafydd 4 potel o gordial cyrens duon ac 1 botel o ddŵr soda.
Gwariodd Iona £2.04 a gwariodd Dafydd £2.48.
Defnyddiwch ddull algebraidd i gyfrifo cost potel o gordial cyrens duon a chost potel o ddŵr soda. [5]

Cost potel o gordial cyrens duon yw ....

Cost potel o ddŵr soda yw ....

8.

Mae Tomos, Gwen a Jen yn ymweld â'r un stondin ffrwythau.
Mae Tomos yn prynu 4 kg mafon a 5 kg cyrens duon am gyfanswm cost o £38.
Mae Gwen yn prynu 6 kg mafon a 3 kg cyrens duon am gyfanswm cost o £39.
Defnyddiwch ddull algebraidd i ddarganfod faint yw'r **cyfanswm** mae Jen yn ei dalu am 5 kg mafon a 7 kg cyrens duon. [6]

9.

Gwyddonydd yw David.
O ganlyniad i arbrawf, mae e'n darganfod cysylltiadau rhwng dau newidyn f a g.
Er mwyn ysgrifennu'r casgliad mae angen iddo ddarganfod gwerthoedd f a g.

Dyma'r cysylltiadau mae David yn eu darganfod:

- Mae dwywaith f wedi'i adio at dair gwaith g yn rhoi cyfanswm o 5
- Mae tair gwaith f wedi'i adio at bedair gwaith g yn rhoi cyfanswm o 4

Lluniwch bâr o hafaliadau cydamserol a datryswch nhw i ddarganfod gwerthoedd f a g.

....

....

....

....

....

....

....

....

....

....

....

....

[5]

10.

Nid yw'r diagramau wedi'u lluniadu wrth raddfa

Defnyddiwch ddull algebraidd i gyfrifo gwerthoedd a a b. [6]

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

Cynllun Marcio

1.

Method to find the first variable Correct first variable Method to find the second variable Correct second variable	M1 A1 m1 A1 4	Allow one slip (but not in the equated variable). $x = 0·5$, $y = –3$

2.

Unit 2 GCSE Maths June 2015 Higher Tier	TICK	MARK	Comment
10. Method to find the first variable Correct first variable Method to find the second variable Correct second variable	✓ ✓ ✓ ✓	M1 A1 m1 A1	Allow one slip (but not in the equated variable) FT 'their first variable' $x = –2$, $y = 2·5$

3.

Method to solve, e.g. equate variable with attempt to +/- as appropriate First variable correct Method to find the second variable Second variable correct	M1 A1 m1 A1 4	Allow 1 slip in non equated variable **a = 4.2** **b = 6**

4.

6(a)(… the) <u>cost</u> of a sandwich in <u>pence</u> AND (… the) <u>cost</u> of a drink in <u>pence</u>	B2	Do not accept 'sandwiches' and 'drinks' need 'cost'('price') and unit 'pence' B1 if correct (cost) but 'in pence' omitted, or for either statement correct, or for '*sandwiches in pence and drinks in pence'* B0 for 'sandwiches' and 'drinks'
(b) Method, e.g. equal coefficients Correct first variable Method to find 2nd variable, e.g. substitution Correct second variable	M1 A1 m1 A1	Allow 1 slip in non-equalised variable $x = 180$ or $y = 90$

5.

(a) 8a + 8b = 69.6 or a + b = 8.7 or equivalent	B1	Accept unsimplified equations Mark final answer unless no other marks awarded in (b)
(b) Method to equate coefficients (allow 1 slip) with attempt to subtract First variable Method to find second variable Second variable (Length of rectangle H is) 23.1 (cm) AND (Width of rectangle H is) 11.7 (cm)	M1 A1 m1 A1 B1	OR alternative algebraic method (not trial &improvement), e.g .a = 8.7-b or b = 8.7–a substituted into 10a + 16b = 96 FT for their equations in a similar format **a = 7.2 b = 1.5** Accept length and width in either order FT provided both answers are positive and only provided M1, m1 awarded (3a + b and a + 3b correctly evaluated) *(FT use of 4a + 4b = 69.6 leads to a = 30.4 and b = -13)*

6.

10. b + 4c = 310, 2b + 3c = 345 Method to find first variable Correct first variable Correct second variable (£)455 AND 'No'	B1 M1 A1 A1 B1 5	Strategy of forming a pair of equations. (Do not penalise for not defining variables.) FT for equations of equivalent difficulty. b = (£)90, c = (£)55 OR (£)345 + 2×(£)55. FT 'their first variable' for second A1. FT 'their derived b anc c'. An unsupported answer gets 0 marks.

7.

11. Equations 2b+3s = 2(.)04 and 4b + (1)s = 2(.)48 Method, equating coefficients or alternative First variable correct Method to find second variable Second variable correct	S1 M1 A1 m1 A1	Accept other variables Allow 1 slip, but not in equated coefficients FT their equations in 2 variables provided at least 1 equation is correct **Blackcurrant 54(p) or (£)0.54** **Soda water 32(p) or (£)0.32** *Do not accept trial & improvement, maximum mark S1*

8.

Linear GCSE Mathematics Higher Tier November 2015 Paper 1		**FINAL MARK SCHEME Comments**
12. 4r(aspberries) + 5b(lackcurrants) = (£)38 6r(aspberries) + 3b(lackcurrants) = (£)39 Method to eliminate variable, e.g. equal coefficients First variable Substitute to find second variable Second variable Jen pays (£)50.5(0)	S1 M1 A1 m1 A1 B1 6	For both equations, in symbols or words, however '+' and '=' must be shown as symbols Do not accept 4kg + 5kg = 38 with 6kg + 3kg = 39 *FT provided at least 1 equation correct, but 1 slip in the other equation* Allow 1 error in one term, not one with equal coefficients **raspberries r = (£)4.5(0) or blackcurrants b = (£)4** FT their first variable FT for m1 not A1 if 'their first variable is negative' FT provided M1 and m1 awarded, for correct evaluation of 'their 5r + 7b'

9.

8. $2f + 3g = 5$ and $3f + 4g = 4$	B1	FT provided at least 1 correct equation and solving is of equivalent difficulty
Method, e.g. equal coefficients	M1	Allow 1 slip in non-equalised variable
Correct first variable	A1	$f = -8$ or $g = 7$
Method to find 2nd variable, e.g. substitution	m1	
Correct second variable	A1	
	5	

10.

10a + 15b = 180	B1	Or equivalent
4a + 105b = 270 or 4a + 105b + 90 = 360	B1	Or equivalent
Method to solve, e.g. equate one variable and intention to subtract	M1	FT provided equivalent level of difficulty and at least B1 previously awarded Allow 1 slip in one of the non equated variables **a = 15**
One variable correct	A1	**b = 2**
Method to find the second variable	m1	
Second variable correct	A1	Unsupported answers are not accepted Trial & improvement is not accepted
	6	