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| **National 5 Homework Exercise 15** | C:\Users\Ian\Pictures\CHS.jpg |
|  |
| **Simultaneous Equations** |
|  |
| Issued by: |  | Return by: |  |
|  |
| **Working MUST be shown in every answer.** |
|  |
| **1.** | a) | Find the points where these graphs cut the *x* – and *y* – axes: |
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|  |  | (i) | *y* = *x* – 2  | (ii) | *x* + 2*y* – 8 = 0 |
|  |  |  |  |  |  |
|  | b) | Use your answers to part a) to sketch the two graphs ON THE SAME DIAGRAM. |
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|  | c) | Use your diagram to find the point of intersection of the two graphs. |
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| **2.** | Solve the following pairs of simultaneous equations. |
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|  | a) | *x* + *y* = 56*x* – *y* = 16 | b) | 4*a* – 3*b* = 18*a* + 3*b* = -3 | c) | 2*b* – *c* = -33*b* + 2*c* = 13 |
|  |  |  |  |  |  |  |
|  | d) | *y* + *x* = 45*y* – *x* = 4 | e) | 3*p* – 4*q* = -15*p* – 2*q* = -11 | f) | 7*g* + 4*h* = 363*g* + 6*h* = 24 |
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| **3.** | For each question below, make two separate equations and solve them to obtain the answer. |
|  |  |
|  | a) |  | The total length of two planks of wood is 4.5 metres.  |
|  |  |  |
|  |  | The long plank is 0.5 metres longer than the short plank. |
|  |  |  |
|  |  | Find the length of each plank of wood. |
|  |  |  |
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|  | b) | In a game show, points are awarded for correct answers and points are deducted for wrong answers.  |  |
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|  |  | In Round 1, Pauline gave 9 correct answers and 3 wrong answers for a score of 21 points. |
|  |  |  |
|  |  | James gave 7 correct answers and 5 wrong answers for a score of 11 points. |
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|  |  | Find how many points are awarded for a correct answer, and how many are deducted per incorrect answer. |
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|  | c) |  | EasyAir are doing a special offer on flights to Spain. The standard flight costs £45, and the special offer costs £2 (subject to availability). |
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|  |  | An EasyAir plane holds 150 passengers. If the flight was full, EasyAir would have received £6535 in ticket sales. |
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|  |  | How many special offer seats are EasyAir selling on each flight? |
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|  | **Award 1 Mark for each ●** |
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| **1.** | a) | (i) | ● (2, 0) | (ii) | ● (8, 0) | b) | ● y = x – 2 correctly drawn | c) | ● (4, 2) |
|  |  |  | ● (0, -2) |  | ● (0, 4) |  | ● x + 2y – 8 = 0 correctly drawn |  |  |
|  |  |  |  |  |  |  |  |  |
| **2.** | a) | ● x = 36 | b) | ● a = 3 | c) | ● 4b – 2c = -6 | d) | ● y = 24.5 |
|  |  | ● y = 20 |  | ● b = - 2 |  | ● b = 1 |  | ● x = 20.5 |
|  |  |  |  |  |  | ● c = 5 |  |  |
|  |  |  |  |  |  |  |  |  |
|  | e) | ●  | scaling | f) | ● | scaling |  |
|  |  | ● p = -3 |  | ● g = 4 |  |  |  |  |
|  |  | ● q = -2 |  | ● h = 2 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **3.** | a) | ● x + y = 4.5 | b) | ● 9x + 3y = 21 | c) | ● x + y = 150 |
|  |  | ● x – y = 0.5 |  | ● 7x + 5y = 11 |  | ● 45x + 2y = 6535 |
|  |  | ● x = 2.5 or y = y |  | ● Evidence of scaling |  | ● Evidence of scaling  |
|  |  | ● long = 2.5m, short = 2m |  | ● x = 3 or y = -2 |  | ● x = 145 or y = 5 |
|  |  |  |  | ● 3 points for correct, 2 points off for wrong |  | ● 5 special offer seats |
|  |  |  |  |  |  |  |
|  | **TOTAL: 36 MARKS** |