**April 2016 PPE Edexcel Style Higher Tier 1H Mark scheme**

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| --- | --- | --- | --- |
| Question (part) | Answer | Mark | Notes |
| 1 | 18 | 4 | M1 for  × 180 ( = 135) oeM1 for 0.15 × 180 ( = 27) oeM1 (dep on both prev M1) for 180 – “135” – “27”A1 cao |
| 2(a) | 265.66 | 1 | A1 |
| 2(b) | 265660 | 1 | A1 |
| 2(c) | 3590 | 1 | A1 |
| 3(a) |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 6 | 9 |  |  |  |  |  |
| 1 | 1 | 1 | 4 | 5 | 6 | 6 | 9 |
| 2 | 0 | 2 | 4 | 5 | 7 | 8 |  |
| 3 | 1 | 1 | 2 | 3 |  |  |  |
| 4 | 0 |  |  |  |  |  |  |

 | 3 | B2 for a fully correct diagram. Accept a stem of 10, 20, 30, 40 (the order of the numbers in the stem may be reversed) (B1 for ordered or unordered leaves, with just one error or omission) B1 for a correct key (units may be omitted)  |
| 3(b) | 21 | 2 | M1 (ft ordered stem and leaf diagram) for median value is 10.5th as evidenced by 10th and 11th seen **or** ’20, 22’written **or** both ringed in the stem and leaf diagram **or** in a fully ordered list (with at most 2 errors or omissions) **or** indicated in an unambiguous way circled (ft stem and leaf diagram) A1 for 21 **or** ft ordered stem and leaf diagram |
| 4(a) |  | 2 | M1 8*n* + *k* (*k* may be zero)A1 oe e.g. 3 + (*n* – 1)×8 |
| 4(b) | Yes, with explanation | 2 | M1 for “8n-5” = 115 or any other valid method, e.g. counting on 8s (to get to 115)A1 for Yes with complete explanation, e.g. 8*n -5* =115 gives the fifteenth term  |
| 5 | 650 | 5 | CED= EAB =70 corresponding angles are equalCDE= 180 -125-angles on a straight line total 180BCA = 180 – ( 45+70) angles in a triangle total 180X= CAF = BCA –alternate angles are equalC1 (dep on M2) for all reasons and linked to appropriate working, e.g. Alternate angles are equal; Allied angles / Co-interior angles add up to 180o; Base angles of an isosceles triangle are equal; angles in a triangle add to 180°, angles on a straight line equals 180°A1: 65 supported by working |
| 6(a) | 90 | 2 | M1 for 300 × 0.3 oeA1 cao |
| 6(b) | 0.2 | 2 | M1 subtracting sum of probabilities from 1, e.g. 1−(0.3+0.3+0.2)A1 cao |
| 7 | 3 | 4 | M1 for a method to calculate at least one area correctlyM1 for a method to find the total area M1 (dep on M1) for “138” ÷ 36C1 (dep on M3) for 3 (pigs) clearly identified and supported by correct calculations |
| 8 | 14 | 5 | M1 sharing 150 in ratio 2:3A1 90 for MeganM1 15% x ‘90’A1 13.50M1 180 ÷ ‘13.50’A1 14 |
| 9(a) |  | 2 | 1st aspect: time frame 2nd aspect: overlapping boxes –eg.’the 10 is in two places’ ‘the amounts overlap’) 3rd aspect: not exhaustive (eg no <£1, other) Award B2 for 2 aspects, B1 for 1 aspect  |
| 9(b) |  | 2 | 1st aspect: one question or responses which includes a time frame 2nd aspect: at least 3 non-overlapping response boxes; need not be inclusive of all. 3rd aspect ; Allow for inclusion of (£)0 or use of phrase ‘bigger than’ oe with at least 3 response boxes Award B2 for two aspects, B1 for one aspect NB response boxes must be intervals but allow 0 on its own for the 3rd aspect  |
| 10(a) |  | 1 | B1 cao  |
| 10(b) |  | 2 | M1 for a method to expand a bracket, e.g. 6x+ 12 or 5*x* − 10A1 cao |
| 10( c)  |  | 2 | M1 for 4 terms correct ignoring signs or 3 out of no more than 4 terms with signs correct unless ambiguousA1 cao |
| 10(d) |  | 2 | M1 for 5*b*(n*b*+c) or *b*(15*b* +10) [n,c integers, c≠0]A1 cao |
| 10(e) |  | 2 | M1 for (*y* ± 5)(*y* ± 3) unless ambiguousA1 cao |
| 11 | 10 | 3 | M1 20 × 31or 21 × 30 M1 (dep) finding the difference in their totals e.g. ‘630’ – ‘620’ A1 cao  |
| 12 | 68 mph | 4 | M1 for 45/30 (=1.5) M1 for 181-45 (=136)M1 for ‘136’÷’2’A1 cao |
| 13 | dodecagon | 4 | B1 360-60 seen or /2B1 exterior angle is 30B1 identifying polygon as twelve sidedA1 Dodecagon |
| 14(a) |  | 1 | B1 |
| 14(b) |  | 1 | B1 |
| 14 ( c)  | 4.2 ×1015 | 2 | M1 42 x 1014A1 cao |
| 15(a) | 12,45,62,72,78,80 | 1 | B1 |
| 15(b) | Check graph  | 2 | B1 points plotted correctlyB1 point connected by a smooth curve or straight line segments |
| 15(c ) | Yes , with explanation | 3 | B1 75% × 80 = 60M1 ‘68’- read from graphC1 correct explanation  |
| 16 | 7 | 5 | M1 for M1 M1- correctly collecting like terms- to get =2M1 for correctly evaluating A1 cao |
| 17(a) | 12, 2, 0.6, 0.5 | 2 | B2 all correct B1 if 3 correct |
| 17(b) | Correct graph | 2 | B1 for at least five points plotted correctlyA1 fully correct curve |
| 18 | 2√3 +1 | 3 | M1 multiplication of numerator and denominator by √3M1 for oeB2 for answer 2√3 +a or a√3 +1 |
| 19 | £153 | 4 | M2 for or B1 for or sub 3 into equationA1 cao |
| 20(a) |  | 3 | M1 for method to use a common denominator, e.g. M1 (dep on M1) for correct expansion of brackets and combination of numerators e.g. A1 for  |
| 20(b) |  | 4 | M1 for intention to multiply both sides by *b* + 2 as a first step e.g. *a* × *b* + 2 = 4 – 7*b*M1 for intention to correctly isolate their *a* terms on one side and the other terms on the other sideM1 for intention to factorise to get a on its ownA1 for oe |
| 21 |  oe | 4 | M1 for 3 fractions where a < 10, b < 9 and c < 8M1 for  or or  M1 for   +  +  or 3 ×  A1 for  oe.  |
| 22 |  | 5 | M1 equates volume of sphere with volume of cylinderM1 attempts to substitute in both correct volume formulaeB1 correct volume of either volume of sphere or volume of cylinder- allow one errorM1 clear simplification A1  |