



THIRD SPACE
LEARNING

Mathematics

Paper 3

(Calculator)

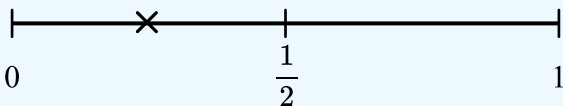
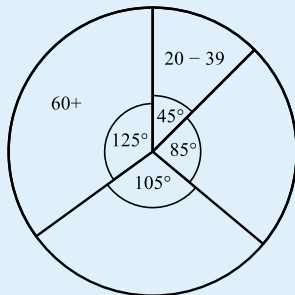
Foundation Tier

Mark Scheme

Edexcel GCSE

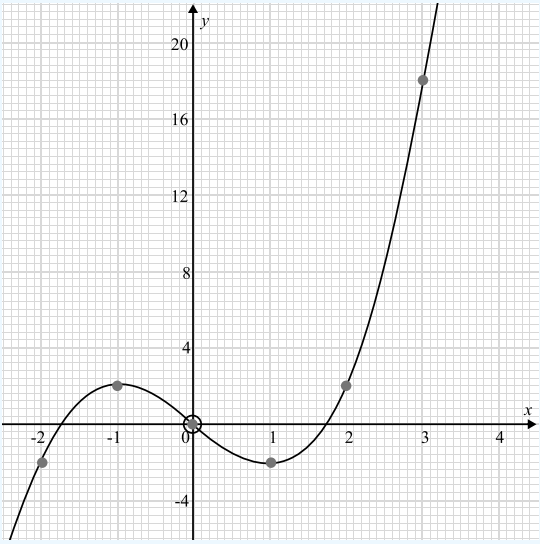
SET 4

| Question | Working | Answer | Notes |
|----------|---|------------------|---|
| Q1 | | 20032 | A1 cao |
| Q2 | | -6, -5, -2, 3, 7 | A1 cao |
| Q3 | Factors of 20 : 1, 2, 4, 5, 10, 20 | | A1 Any 2 factors of 20 |
| Q4 | | 11:05 am | A1 11:05 (am) |
| Q5 | | 4.8 | A1 cao |
| Q6 | | A rhombus | M1 A quadrilateral with 2 lines of symmetry or 2 acute angles and 2 obtuse angles A1 A rhombus |
| Q7 | $\frac{14}{20} = \frac{7}{10}$ | $\frac{7}{10}$ | M1 $\frac{14}{20}$ A1 cao |
| Q8 | Number of pumpkins: $21 + 55 + 87 = 163$ Number of toffee apples: $64 + 52 + 49 = 165$ | Toffee apples | A1 Number of pumpkins 163 A1 Number of toffee apples 165 B1 More toffee apples, following correct working |
| Q9 | $29 - 8 = 21$ $21 \times 4 = 84$ | 84 | M1 Subtracts 8 M1 Multiplies by 4 A1 cao |

| Question | Working | Answer | Notes | | | | | | | | | | | | | | | |
|----------|---|--|--|-------|--------|----|-------------|---------|---|------------|---------|----|------------|------|----|-------------|---|--|
| Q10a |  | | B1 Correct position marked | | | | | | | | | | | | | | | |
| Q10b | | $\frac{5}{8}$ | M1 Fraction with denominator of 8 A1 cao | | | | | | | | | | | | | | | |
| Q11 | $25 \times 3 = 75$ eggs needed $6 \times 12 = 72$ eggs | No | M1 75 eggs needed, has 72 eggs A1 No following correct working | | | | | | | | | | | | | | | |
| Q12 | $30:24:54 = 5:4:9$ | $5:4:9$ | M1 30:24:54 oe A1 Correct, fully simplified ratio | | | | | | | | | | | | | | | |
| Q13 | $37 + 88 + 112 + 103 = 340$ | The angles add up to 340° but the angles in a quadrilateral add up to 360° | M1 Adds all 4 angles (= 340°) B1 Correct conclusion following correct working | | | | | | | | | | | | | | | |
| Q14 | $3.1 \times 7.8 = 24.18$ $8 - 6.8 = 1.2$ | 20.15 | M1 24.18 or 1.2 seen A1 cao | | | | | | | | | | | | | | | |
| Q15 | <table><tr><th>Age</th><th>Frequency</th><th>Angle</th></tr><tr><td>0 – 19</td><td>21</td><td>105°</td></tr><tr><td>20 – 39</td><td>9</td><td>45°</td></tr><tr><td>40 – 59</td><td>17</td><td>85°</td></tr><tr><td>60 +</td><td>25</td><td>125°</td></tr></table> | Age | Frequency | Angle | 0 – 19 | 21 | 105° | 20 – 39 | 9 | 45° | 40 – 59 | 17 | 85° | 60 + | 25 | 125° |  | M1 Recognises that <i>angle</i> = $5 \times frequency$ M1 Angle for 20 – 39 = 105° M1 $360 - 105 - 45 - 125 = 85^\circ$ M1 $85 \div 5 = 17$ A1 Pie chart accurately completed |
| Age | Frequency | Angle | | | | | | | | | | | | | | | | |
| 0 – 19 | 21 | 105° | | | | | | | | | | | | | | | | |
| 20 – 39 | 9 | 45° | | | | | | | | | | | | | | | | |
| 40 – 59 | 17 | 85° | | | | | | | | | | | | | | | | |
| 60 + | 25 | 125° | | | | | | | | | | | | | | | | |

| Question | Working | Answer | Notes |
|----------|--|--|--|
| Q16a | | 3600 | A1 cao |
| Q16b | | 0.004 | A1 cao |
| Q17 | | Enlargement scale factor 2, centre (0, 2) | B1 Enlargement scale factor 2 B1 Centre (0, 2) |
| Q18a | $4y + 20 - 2y - 8$ $= 2y + 12$ | $2y + 12$ | M1 Correctly expands one bracket A1 cao |
| Q18b | | $4(3x - 4)$ | A1 cao |
| Q19 | | $1000mm^3$ | A1 cao |
| Q20 | $12000 - 10560 = 1440$ $\frac{1440}{12000} = 0.12$ $0.12 \times 100 = 12\%$ | 12% | M1 $12000 - 10560 = 1440$ M1 $\frac{1440}{12000} = 0.12$ or 0.12×100 seen A1 cao |
| Q21 | $m + n = 4p$ $\frac{m + n}{4} = p$ | $p = \frac{m + n}{4}$ | M1 Adds n A1 cao |
| Q22 | | No, it should be $-2 \leq p \leq 3$ | B1 Correct explanation |
| Q23 | $18 \times 2.5 = 45$ Circumference $= \pi \times 45 = 141.3716694$ $1km = 1000m = 100000cm$ $100000 \div 141.3716694 = 707.3553026$ | 707 | M1 Converts from inches to cm M1 Calculates circumference M1 Divides 100000 by circumference A1 cao |

| Question | Working | Answer | Notes | | | | | | | | | | | | | | |
|-------------|--|---------|---|-------|--------|-------|-------------|------|------|-----|-----|-------------------------|--|---|----|-----------|--|
| Q24 | $0 \times 4 + 1 \times 7 + 2 \times 10 + 3 \times 6 + 4 \times 3 = 57$ $\frac{57}{30} = 1.9$ | 1.9 | M1 Multiplies number of siblings by frequencies M1 Divides by 30 A1 cao | | | | | | | | | | | | | | |
| Q25 | $12 \times 6 = 72$ machine hours $72 \div 8 = 9$ | 9 hours | M1 $12 \times 6 = 72$ machine hours A1 cao | | | | | | | | | | | | | | |
| Q26a | $0.15 + 0.45 = 0.6$ $1 - 0.6 = 0.4$ $0.4 \div 4 = 0.1$ $0.1 \times 3 = 0.3$ <table><tr><td>Colour</td><td>red</td><td>blue</td><td>yellow</td><td>green</td></tr><tr><td>Probability</td><td>0.15</td><td>0.45</td><td>0.3</td><td>0.1</td></tr></table> | Colour | red | blue | yellow | green | Probability | 0.15 | 0.45 | 0.3 | 0.1 | Yellow 0.3 Green 0.1 | M1 $1 - 0.15 - 0.45 (= 0.4)$ A1 cao | | | | |
| Colour | red | blue | yellow | green | | | | | | | | | | | | | |
| Probability | 0.15 | 0.45 | 0.3 | 0.1 | | | | | | | | | | | | | |
| Q26b | $200 \times 0.15 = 30$ | 30 | M1 200×0.15 A1 cao | | | | | | | | | | | | | | |
| Q27a | $(-2)^3 - 3 \times (-2) = -2$ $0^3 - 3 \times 0 = 0$ $3^3 - 3 \times 3 = 18$ <table><tr><td>x</td><td>-2</td><td>-1</td><td>0</td><td>1</td><td>2</td><td>3</td></tr><tr><td>y</td><td>-2</td><td>2</td><td>0</td><td>-2</td><td>2</td><td>18</td></tr></table> | x | -2 | -1 | 0 | 1 | 2 | 3 | y | -2 | 2 | 0 | -2 | 2 | 18 | -2, 0, 18 | M1 2 values correct A1 All values correct |
| x | -2 | -1 | 0 | 1 | 2 | 3 | | | | | | | | | | | |
| y | -2 | 2 | 0 | -2 | 2 | 18 | | | | | | | | | | | |

| Question | Working | Answer | Notes |
|----------|--|---|---|
| Q27b |  | | <p>M1 At least 4 points plotted correctly</p> <p>A1 All points correct and joined with a smooth curve</p> |
| Q27c | | $x = 2.6$ | <p>M1 Line $y = 10$ drawn</p> <p>A1 Accept answer in the range $2.4 - 2.8$</p> |
| Q28 | $\frac{4 - -2}{3 - a} = 2$ $\frac{6}{3 - a} = 2$ $\frac{6}{2} = 3 - a$ $3 = 3 - a$ $a = 0$ | $a = 0$ | <p>M1 Attempt at $m = \frac{y_2 - y_1}{x_2 - x_1}$ or evidence of another valid method e.g. sketching graph</p> <p>M1 Fully correct substitution, giving $\frac{4 - -2}{3 - a} = 2$ and attempt to solve for a, or correct step of another method</p> <p>A1 $a = 0$</p> |
| Q29a | | <p>This is a reverse percentage question so</p> <p>$80\% = £360$. 20% of the original is not 20% of the sale price</p> | <p>B1 A correct explanation</p> |

| Question | Working | Answer | Notes |
|-------------|--|--------|---|
| Q29b | $£612 = 85\%$ $1\% = \frac{612}{85} = 7.2$ $100\% = 7.2 \times 100 = £720$ | £720 | M1 Finds 1% or 10% A1 cao |
| Q30a | Exterior angle of regular octagon: $360 \div 8 = 45^\circ$ $GH = GI$ so angle $GIH = 45^\circ$ Angles in a triangle sum to 180° so $180 - 45 - 45 = 90^\circ$ | | M1 Calculates exterior angle of octagon M1 States angle $GIH = 45^\circ$ with reason A1 $180 - 45 - 45 = 90^\circ$ |
| Q30b | Angle $EHI = 90^\circ$ so angle $EHG = 45^\circ$ Angle $FGH = 135^\circ$ (interior angle of octagon) Angle $CGH = 135 \div 2 = 67.5^\circ$ Angle $y = 180 - 45 - 67.5 = 67.5^\circ$ | 67.5° | M1 $EHG = 45^\circ$ M1 $CGH = 135 \div 2 = 67.5^\circ$ A1 Angle $y = 180 - 45 - 67.5 = 67.5^\circ$ (Allow alternative method using BCG is corresponding to angle y as BC is parallel to EH) |
| Q30c | Need length GH $\cos(45) = \frac{GH}{5\sqrt{2}}$ $GH = 5\sqrt{2} \times \cos(45) = 5$ Perimeter $= 8 \times 5 = 40cm$ | 40cm | M1 Attempt at a method to find length GH (trigonometry or Pythagoras theorem) A1 $GH = 5$ M1 <i>ft</i> their '5' $\times 8$ A1 cao |

Help ease the pressure with a personalised revision programme for each of your target KS4 students

Our one to one GCSE revision programme is designed to help your target students reach their potential in their GCSE maths exams.

Our specialist maths tutors work one to one with each student, focusing on securing core KS4 content and building familiarity with the kinds of questions they'll be tackling in their GCSE exams.

Get in touch today:

✉ hello@thirdspacelearning.com

🔍 thirdspacelearning.com

☎ 0203 771 0095