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1MA1 Nov 2026 Paper 1 Best Guess Paper

Model Answer

FOCUS Grade 4/5

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The best way to prepare for the exams is to revise all topics

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The Playlist for Solutions can be found



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The best way to work with this paper is work through it all, watch the Clip. If you get the question incorrect watch the clip again and then [try](#) the similar questions from the worksheets

Model Answers: 1MA1 Nov 2026 Paper 1

Question 1

Convert the mixed number to an improper fraction:

$$2 \frac{1}{4} = \frac{9}{4}$$

Multiply by the reciprocal of the second fraction:

$$\frac{9}{4} \times \frac{5}{3} = \frac{45}{12}$$

Simplify the fraction (divide top and bottom by 3):

$$\frac{15}{4}$$

Convert back to a mixed number:

Answer: $3 \frac{3}{4}$

Question 2

Alex : Ben : Chloe = 2 : 5 : 9

Difference in parts between Chloe and Alex = $9 - 2 = 7$ parts.

We are told this difference is £35.

Therefore, 7 parts = £35, which means 1 part = $£35 \div 7 = £5$.

Ben receives 5 parts: $5 \times £5 = £25$.

Answer: £25

Question 3

(a) **Frequency Polygon:**

Plot points at the midpoints of each class interval:

(5, 14), (15, 18), (25, 4), (35, 6), (45, 6), (55, 2)

Join these points sequentially with straight line segments.

(b) **Modal Class Interval:**

The highest frequency is 18, which corresponds to the interval $10 < t \leq 20$.

Answer (b): $10 < t \leq 20$

Question 4

(a) Multiply indices with the same base (add the powers): a^{6+10}

Answer (a): a^{16}

(b) Divide indices with the same base (subtract the powers): c^{30-12}

Answer (b): c^{18}

(c) Find the highest common factor of $18x^2y$ and $24xy^2$.

HCF of 18 and 24 is 6. HCF of x^2y and xy^2 is xy .

Take out $6xy$:

Answer (c): $6xy(3x - 4y)$

Question 5

(i) Find two numbers that multiply to give 24 and add to give -10.

These numbers are -4 and -6.

Answer (i): $(x - 4)(x - 6)$

(ii) Setting the expression to 0: $(x - 4)(x - 6) = 0$

Answer (ii): $x = 4$ or $x = 6$

Question 6

The number 0.046 is rounded to 2 significant figures.

The lower bound is halfway between 0.045 and 0.046 (0.0455).

The upper bound is halfway between 0.046 and 0.047 (0.0465).

Answer: $0.0455 \leq y < 0.0465$

Question 7

Universal set $E = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$

Set A (factors of 12) = $\{1, 2, 3, 4, 6, 12\}$

Set B (multiples of 3) = $\{3, 6, 9, 12\}$

(a) $A \cap B$ is the intersection (numbers in both sets):

Answer (a): $\{3, 6, 12\}$

(b) $A \cup B$ is the union (numbers in either set): $\{1, 2, 3, 4, 6, 9, 12\}$

There are 7 numbers in the union out of 12 possible numbers in total.

Answer (b): $\frac{7}{12}$

Question 8

A 20% reduction means the sale price represents 80% of the normal price.

80% = £72

10% = £72 ÷ 8 = £9

100% (Normal price) = £9 × 10 = £90

Answer: £90

Question 9

(a) Round values to 1 significant figure for an estimate.

Radius $r \approx 20$ cm. $\pi \approx 3$.

$$\text{Area} = \pi r^2 \approx 3 \times 20^2 = 3 \times 400$$

Answer (a): 1200 cm^2

(b) Since we rounded the radius UP (from 19.8 to 20), our calculated area will be larger than the true area. (Note: even if rounding π down slightly to 3, the squaring of 20 has a much larger dominating effect).

Answer (b): Overestimate, because the radius was rounded up.

Question 10

(a) Move the decimal point 5 places to the right to get a number between 1 and 10.

Answer (a): 4.07×10^{-5}

(b) Multiply the number parts and power parts separately:

$$(3.2 \times 5) \times (10^4 \times 10^3)$$

$$= 16 \times 10^7$$

Convert to standard form by moving decimal one place left and increasing power by 1:

Answer (b): 1.6×10^8

Question 11

(a) $3\binom{4}{-3} + 2\binom{-2}{5} = \binom{12}{-9} + \binom{-4}{10} = \binom{12}{-9+10}$

Answer (a): $\binom{8}{1}$

(b) $2a - b = 2\binom{4}{-3} - \binom{-2}{5} = \binom{8}{-6} - \binom{-2}{5} = \binom{8 - (-2)}{-6 - 5} = \binom{10}{-11}$

Since $c = \binom{10}{k}$, equating the y-components gives $k = -11$.

Answer (b): $k = -11$

(c) Translation maps P(3, -1) by vector (-5, 4):

x-coordinate: $3 - 5 = -2$

y-coordinate: $-1 + 4 = 3$

Answer (c): Q(-2, 3)

Question 12

Equation 1: $3x + 2y = 16$

Equation 2: $4x - 3y = 27$

Multiply Eq 1 by 3: $9x + 6y = 48$

Multiply Eq 2 by 2: $8x - 6y = 54$

Add the two new equations to eliminate y:

$$17x = 102$$

$$x = 102 \div 17 = 6$$

Substitute $x = 6$ into Eq 1:

$$3(6) + 2y = 16$$

$$18 + 2y = 16 \Rightarrow 2y = -2 \Rightarrow y = -1$$

Answer: $x = 6, y = -1$

Question 13

Calculate interior angle of regular hexagon (6 sides):

$$(6 - 2) \times 180^\circ \div 6 = 720^\circ \div 6 = 120^\circ$$

Calculate interior angle of regular pentagon (5 sides):

$$(5 - 2) \times 180^\circ \div 5 = 540^\circ \div 5 = 108^\circ$$

Angles around a point sum to 360° , so:

$$x = 360^\circ - (120^\circ + 108^\circ) = 360^\circ - 228^\circ = 132^\circ$$

Answer: 132°

Question 14

Red : Blue = 3 : 4

Blue : Yellow = 2 : 5

To combine these ratios, make the 'Blue' parts equal. Multiply the second ratio by 2:

Blue : Yellow = 4 : 10

Combined ratio Red : Blue : Yellow = 3 : 4 : 10

Total parts = $3 + 4 + 10 = 17$

Yellow represents 10 out of 17 parts ($\frac{10}{17}$).

Exactly half would be 8.5 out of 17.

Answer: Sam is incorrect, yellow counters make up $\frac{10}{17}$ of the bag, which is more than half.

Question 15

Books : DVDs = 5 : 3 = 20 : 12

DVDs : Records = 4 : 1 = 12 : 3

Combined starting ratio B : D : R = 20 : 12 : 3

Let the starting numbers be $20x$, $12x$, and $3x$. Total = $35x$.

Books sold: 40% of $20x = 0.4 \times 20x = 8x$.

DVDs sold: $\frac{1}{6}$ of $12x = 2x$.

Total items sold = $8x + 2x = 10x$.

Items left over = $35x - 10x = 25x$.

We are told 150 items are left, so $25x = 150 \Rightarrow x = 6$.

Total sold = $10x = 10 \times 6 = 60$.

Answer: 60 items

Question 16

Mass = Density $\times$ Volume

Mass of Liquid A = $1.2 \times 300 = 360$ g

Mass of Liquid B = $0.8 \times 200 = 160$ g

Total Mass of C = $360 + 160 = 520$ g

Total Volume of C = $300 + 200 = 500$ cm³

Density of C = Total Mass $\div$ Total Volume = $520 \div 500$

$520 \div 500 = 52 \div 50 = 104 \div 100 = 1.04$

Answer: 1.04 g/cm³

Question 17

(a) **Cumulative Frequencies:**

8, $(8+15=)$ 23, $(23+37=)$ 60, $(60+10=)$ 70, $(70+7=)$ 77, $(77+3=)$ 80.

Answer (a): 8, 23, 60, 70, 77, 80

(b) **Graph:** Points plotted at upper bounds: (200, 8), (300, 23), (400, 60), (500, 70), (600, 77), (700, 80) and joined with a smooth curve.

(c) **Median:** Find the value corresponding to $CF = 40$ (half of 80 workers).

Answer (c): Approx £340 - £350 (read from graph)

(d) **IQR:** Find Upper Quartile ($CF = 60 \Rightarrow £400$) and Lower Quartile ($CF = 20 \Rightarrow \sim£280$).

$IQR = UQ - LQ = 400 - 280$.

Answer (d): Approx £110 - £120

(e) Find CF at £430 on x-axis (approx 63 workers earn up to £430).

Workers earning MORE than £430 = Total - 63 = $80 - 63 = 17$.

Answer (e): Approx 17

Question 18

Let $x = 0.3818181\dots$

Multiply by 10 to isolate the non-recurring part before the decimal point:

$$10x = 3.818181\dots$$

Multiply by 1000 to move one full recurring cycle past the decimal point:

$$1000x = 381.818181\dots$$

Subtract the two equations:

$$1000x - 10x = 381.8181\dots - 3.8181\dots$$

$$990x = 378$$

$$x = \frac{378}{990}$$

Simplify (divide top and bottom by 18):

$$\text{Answer: } x = \frac{21}{55}$$

Question 19

Expand the first two brackets:

$$(x - 2)(x + 3) = x^2 + 3x - 2x - 6 = x^2 + x - 6$$

Multiply this result by the third bracket:

$$\begin{aligned} &(x^2 + x - 6)(2x + 1) \\ &= 2x^3 + x^2 + 2x^2 + x - 12x - 6 \end{aligned}$$

Collect like terms:

$$\text{Answer: } 2x^3 + 3x^2 - 11x - 6$$

Question 20

Factorise the numerator (Difference of Two Squares):

$$x^2 - 9 = (x + 3)(x - 3)$$

Factorise the denominator (Quadratic with a > 1):

Find two numbers that multiply to $2 \times -3 = -6$ and add to 5 (6 and -1).

$$2x^2 + 6x - x - 3 = 2x(x + 3) - 1(x + 3) = (2x - 1)(x + 3)$$

Write the fraction out and cancel the common factor of $(x + 3)$:

$$\frac{(x + 3)(x - 3)}{(2x - 1)(x + 3)}$$

Answer: $\frac{x - 3}{2x - 1}$

Question 21

Square both sides to remove the square root:

$$p^2 = \frac{2y + 5}{3y - k}$$

Multiply both sides by $(3y - k)$:

$$p^2(3y - k) = 2y + 5$$

Expand the bracket:

$$3p^2y - p^2k = 2y + 5$$

Move all terms involving y to one side:

$$3p^2y - 2y = p^2k + 5$$

Factorise out y:

$$y(3p^2 - 2) = p^2k + 5$$

Divide to isolate y:

Answer: $y = \frac{p^2k + 5}{3p^2 - 2}$

Question 22

Factorise out the 3 from the x terms first:

$$y = 3(x^2 - 4x) + 7$$

Complete the square inside the bracket (half the coefficient of x):

$$y = 3[(x - 2)^2 - (-2)^2] + 7$$

$$y = 3[(x - 2)^2 - 4] + 7$$

Multiply the 3 back into the square brackets:

$$y = 3(x - 2)^2 - 12 + 7$$

$$y = 3(x - 2)^2 - 5$$

The turning point of $a(x - h)^2 + k$ is (h, k) .

Answer: (2, -5)

Question 23

Expand the numerator:

$$(2 + \sqrt{3})^2 = (2 + \sqrt{3})(2 + \sqrt{3}) = 4 + 2\sqrt{3} + 2\sqrt{3} + 3 = 7 + 4\sqrt{3}$$

The fraction is now: $\frac{7 + 4\sqrt{3}}{2 - \sqrt{3}}$

Rationalise the denominator by multiplying top and bottom by the conjugate $(2 + \sqrt{3})$:

$$\frac{(7 + 4\sqrt{3})(2 + \sqrt{3})}{(2 - \sqrt{3})(2 + \sqrt{3})}$$

Denominator: $(2 \times 2) - (\sqrt{3} \times \sqrt{3}) = 4 - 3 = 1$

Numerator: $(7 \times 2) + (7 \times \sqrt{3}) + (4\sqrt{3} \times 2) + (4\sqrt{3} \times \sqrt{3})$

$$= 14 + 7\sqrt{3} + 8\sqrt{3} + 12 = 26 + 15\sqrt{3}$$

Divide by denominator of 1:

Answer: $26 + 15\sqrt{3}$