Pearson

Mark Scheme (Results)

November 2023

Pearson Edexcel GCSE
In Mathematics (1MA1)
Foundation (Non-Calculator) Paper 1F

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General marking guidance

These notes offer general guidance, but the specific notes for examiners appertaining to individual questions take precedence.

1 All candidates must receive the same treatment. Examiners must mark the last candidate in exactly the same way as they mark the first. Where some judgement is required, mark schemes will provide the principles by which marks will be awarded; exemplification/indicative content will not be exhaustive. When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the response should be sent to review.

2 All the marks on the mark scheme are designed to be awarded; mark schemes should be applied positively. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme. If there is a wrong answer (or no answer) indicated on the answer line always check the working in the body of the script (and on any diagrams), and award any marks appropriate from the mark scheme.

Questions where working is not required: In general, the correct answer should be given full marks.
Questions that specifically require working: In general, candidates who do not show working on this type of question will get no marks – full details will be given in the mark scheme for each individual question.

3 Crossed out work

This should be marked **unless** the candidate has replaced it with an alternative response.

4 Choice of method

If there is a choice of methods shown, mark the method that leads to the answer given on the answer line.
If no answer appears on the answer line, mark both methods **then award the lower number of marks.**

5 Incorrect method

If it is clear from the working that the "correct" answer has been obtained from incorrect working, award 0 marks. Send the response to review for your Team Leader to check.

6 Follow through marks

Follow through marks which involve a single stage calculation can be awarded without working as you can check the answer, but if ambiguous do not award.
Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

7 Ignoring subsequent work

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question or its context. (eg an incorrectly cancelled fraction when the unsimplified fraction would gain full marks).
It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect (eg. incorrect algebraic simplification).

8 Probability

Probability answers must be given as a fraction, percentage or decimal. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).
Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.
If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

9 Linear equations

Unless indicated otherwise in the mark scheme, full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously identified in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded (embedded answers).

10 Range of answers

Unless otherwise stated, when an answer is given as a range (eg 3.5 – 4.2) then this is inclusive of the end points (eg 3.5, 4.2) and all numbers within the range

11 Number in brackets after a calculation

Where there is a number in brackets after a calculation eg 2 × 6 (=12) then the mark can be awarded **either** for the correct method, implied by the calculation **or** for the correct answer to the calculation.

12 Use of inverted commas

Some numbers in the mark scheme will appear inside inverted commas eg "12" × 50 ; the number in inverted commas cannot be any number – it must come from a correct method or process but the candidate may make an arithmetic error in their working.

13 Word in square brackets

Where a word is used in square brackets eg [area] × 1.5 : the value used for [area] does **not** have to come from a correct method or process but is the value that the candidate believes is the area. If there are any constraints on the value that can be used, details will be given in the mark scheme.

14 Misread

If a candidate misreads a number from the question. eg uses 252 instead of 255; method or process marks may be awarded provided the question has not been simplified. Examiners should send any instance of a suspected misread to review.

Guidance on the use of abbreviations within this mark scheme	
M	method mark awarded for a correct method or partial method
P	process mark awarded for a correct process as part of a problem solving question
A	accuracy mark (awarded after a correct method or process; if no method or process is seen then full marks for the question are implied but see individual mark schemes for more details)
C	communication mark awarded for a fully correct statement(s) with no contradiction or ambiguity
B	unconditional accuracy mark (no method needed)
oe	or equivalent
cao	correct answer only
ft	follow through (when appropriate as per mark scheme)
sc	special case
dep	dependent (on a previous mark)
indep	independent
awrt	answer which rounds to
isw	ignore subsequent working

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
1	6	B1	cao	
2	31	B1	cao	
3	12*a*	B1		
4	40	B1	accept answer in the range 38 to 42	
5	60	B1	cao	
6	2300	P1 P1 A1	for converting to millilitres or litres eg 3 × 1000 (= 3000) **or** 700 ÷ 1000 (= 0.7) for finding the difference eg [3000] – 700 **or** 3 – [0.7] (= 2.3) accept 2.3 litres	Process marks may be awarded in either order [3000] comes from 3 × 1000 or can be 30 or 300 or 30000 [0.7] comes from 700 ÷ 1000 or can be 7 or 70
7 (a)	15	B1	cao	
(b)	4	B1	cao	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
8 (a)	11, 7, 6	B2 (B1	for all frequencies correct for two tallies or two frequencies correct)	Any discrepancy mark frequencies
(b)	Castle	B1	Castle or ft their tallies or frequencies	Any discrepancy ft frequencies
(c)	Bar chart	B1 M1 A1	for correct place labels or a linear scale for at least two correct bars ft their table in (a) for a fully correct bar chart with linear scale of numbers on the vertical axis and a set of place labels on the horizontal axis (ft from their frequencies or tallies in (a))	Accept key in place of labels Accept unambiguous abbreviations for labels eg C, F, M Condone bars of varying widths Condone no gaps or inconsistent gaps Bars must be unambiguously correct for their scale
9 (i)	$\frac{9}{22}$	B1	oe	If incorrect notation used in both (i) and (ii), penalise once only in (i)
(ii)	$\frac{14}{22}$	B1	oe eg $\frac{7}{11}$	
(iii)	0	B1		

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
10	Yes **and** 750	P1 P1 C1	for beginning to work with proportion eg 60 ÷ 20 (= 3) **or** 900 – 250 (= 650) **or** 250 ÷ 20 (= 12.5 oe) **or** 900 ÷ 60 (= 15) for a complete process to see if there is enough peanut butter eg "3" × 250 (= 750) **or** 900 ÷ "3" (= 300) **or** "650" – 250 – 250 (= 150) oe **or** "12.5" × 60 (= 750) **or** for a complete process to work out how many cookies he can make eg 900 ÷ "12.5" (= 72) **or** for process to work out how much peanut butter is needed for one cookie and how much peanut butter he can use per cookie eg 250 ÷ 20 (= 12.5 oe) **and** 900 ÷ 60 (= 15) Yes **and** accurate figure to compare eg 750 (g needed) **or** 150 (g over) **or** 300 (g per batch available) **or** 72 (cookies can be made) **or** 12.5 (g peanut butter per cookie needed) **and** 15 (g peanut butter per cookie available)	Sugar = 600 (g) or Small eggs = 6 (eggs) implies P1 Sight of 750 gains P2
11	Diagram	M1 A1	for a correct base length (6 cm) drawn or correct height (9 cm) drawn **or** a fully correct enlargement of a scale factor not equal to 3 fully correct enlargement	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
12 (a)(i)	26	M1	for substitution eg $2 \times 3 + 4 \times 5$ or $6 + 20$	
		A1	cao	
(ii)	13	M1	for substitution eg $38 = 2g + 4 \times 3$ **or** a complete numerical method eg $(38 - 4 \times 3) \div 2$ **or** for a correct first step to rearrange eg $P - 4h = 2g$ or $\frac{P}{2} = g + \frac{4h}{2}$ oe	
		A1	cao	
(b)	–11	M1	for $3 \times -3 = -9$ oe **or** a full substitution eg $(3 \times -3) - 2$	Condone absence of brackets
		A1	cao	
13	23	P1	for finding the number of scrunchies possible eg $100 \div 5$ (= 20) **or** the cost of 1 g of wool eg $300 \div 100$ (= 3)	
		P1	for working out the cost of wool per scrunchie eg $3 \div$ "20" (= 0.15) **or** $300 \div$ "20" (= 15) **or** "3" $\times 5$ (= 15) **or** the cost of all hair bands eg "20" $\times 8$ (= 160) **or** "20" $\times$ 0.08 (= 1.6(0))	Award of this mark implies the previous mark 460 implies P2
		P1	for complete process eg ("0.15" + 0.08) $\times 100$ **or** "15" + 8 **or** (300 + "160") $\div$ "20" **or** (3 + "1.6(0)") $\div$ "20" $\times 100$	
		A1	accept £0.23	

<table>
<tr><th colspan="4">Paper: 1MA1/1F</th></tr>
<tr><th>Question</th><th>Answer</th><th>Mark</th><th>Mark scheme</th><th>Additional guidance</th></tr>
<tr><td>14</td><td>Graph drawn</td><td>B3

(B2

(B1

</td><td>for a correct line between $x = -2$ and $x = 2$

for a correct straight-line segment through at least 3 of
$(-2, -9)$, $(-1, -5)$, $(0, -1)$, $(1, 3)$, $(2, 7)$

or for all these points plotted but not joined

or for a line drawn with a positive gradient through $(0, -1)$ and clear intention to use a gradient of 4, eg line through $(0, -1)$ and $(1, 3)$)

for at least 2 correct points stated or plotted

or for a line drawn with a positive gradient through $(0, -1)$

or a line with gradient 4)</td><td>Accept freehand line drawn

Ignore any incorrect points.

Table of values
<table><tr><td>x</td><td>−2</td><td>−1</td><td>0</td><td>1</td><td>2</td></tr><tr><td>y</td><td>−9</td><td>−5</td><td>−1</td><td>3</td><td>7</td></tr></table>

Ignore any incorrect points.
Coordinates may be in a table or working.
Do not accept $y = -1$ drawn</td></tr>
<tr><td>15</td><td>450</td><td>P1

P1

P1

A1</td><td>for working with percentage eg 12000 × 25 ÷100 (= 3000) oe
OR for splitting the cost of the car over 20 months eg 12000 ÷ 20 (= 600)

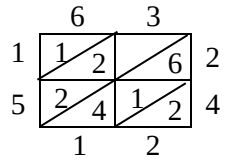
for finding the amount to pay in instalments eg 12000 – [deposit] (= 9000)
OR for splitting the cost of the deposit over 20 months
eg [deposit] ÷ 20 (= 150)
OR for finding 25% of the monthly cost eg “600” × 25 ÷ 100 (= 150) oe

for finding the amount required eg “9000” ÷ 20 or (12000 – [deposit]) ÷ 20
OR “600” – “150”

cao</td><td>

[deposit] can be 3000 or any figure that is identified by them as the deposit or 25% of 12000 calculated incorrectly.</td></tr>
</table>

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
16	Explanation (supported)	M1	for method to find comparable figures eg 60 × 70 ÷ 100 **or** 45 ÷ 60 ×100 **or** 0.7 **or** 0.75	
		C1	for conclusion eg shows 42 (marks) **or** 75 (%) **or** 0.7 **and** 0.75	Figures need not be supported by words but must not be contradicted.
17	$3\frac{3}{5}$	M1	for inverting to give $\frac{3}{5}\times 6$ oe **OR** for two correct fractions with a common denominator eg $\frac{18}{30}\div\frac{5}{30}$	
		M1	for method to calculate eg $\frac{3\times 6}{5}$ or $\frac{3\times 30}{5\times 5}$ or $\frac{18}{5}$ or $\frac{90}{25}$ oe	
		A1	for $3\frac{3}{5}$ or any other equivalent mixed number eg $3\frac{15}{25}$	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
18	15.12	M1	for a complete method with relative place value correct including an intention to add all the appropriate elements of the calculation	252 1260 1512  1200 + 60 + 240 + 12 = 1512
		A1	for digits 1512	
		A1	(dep on M1) for correct placement of the decimal point into their final answer	
19 (a)(i)	1	B1	cao	
(ii)	$\frac{1}{25}$	B1	oe	
(b)	2^6	M1	for a correct first step using a rule of indices, eg 2^{5+4} (= 2^9) or 2^{5-3} (= 2^2) or 2^{4-3} (= 2^1) **or** for $2 \times 2 \times 2 \times 2 \times 2 \times 2$ or 64	
		A1	for 2^6	Accept $n = 6$

	60	3
20	1200	60
4	240	12

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
20 (a)	$2^2 \times 3 \times 13$	M1	for a complete method to find prime factors; could be shown in a complete factor tree with no more than one error **or** by division by prime factors with no more than one error **or** for 2, 2, 3, 13 (1)	Condone the inclusion of 1 for this mark
		A1	$2^2 \times 3 \times 13$ **or** $2 \times 2 \times 3 \times 13$ oe	
(b)	26	M1	for a correct factor tree for 130 (or 156 if not credited in part (a)) with no more than one arithmetic error **or** for listing factors of 156 or 130, at least 4 correct for either (with no more than 1 incorrect in either list), could be in factor pairs **or** for the prime factors of 130 (2, 5, 13) (or 156 if not credited in part (a)). **or** identifies a common factor other than 1 (2 or 13)	Condone the inclusion of 1 for this mark 1, 2, 3, 4, 6, 12, 13, 26, 39, 52, 78, 156 1, 2, 5, 10, 13, 26, 65, 130
		A1	cao	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
21 (a)	3.5	P1 P1 A1	for a process to find the total length of the 5 sticks, eg 4.2×5 (= 21) **or** for forming an equation, eg $\frac{7+4x}{5} = 4.2$ for complete process to find the mean eg ("21" – 7) ÷ 4 oe	
(b)	Explanation	C1	for explanation **Acceptable examples** it reduced the mean my answer will be less the answer will be 1 it will be 2.5 less **Not acceptable examples** the mean will be more my answer will change it would decrease the lengths of the other sticks	If figures are given as part of the answer they must be correct, but can allow ft.
22	Angle constructed	C2 (C1	for fully correct construction with all arcs drawn for line drawn within guidelines with no (or incorrect) construction arcs or correct arcs drawn and no line seen)	Full marks cannot be awarded if no construction lines are seen

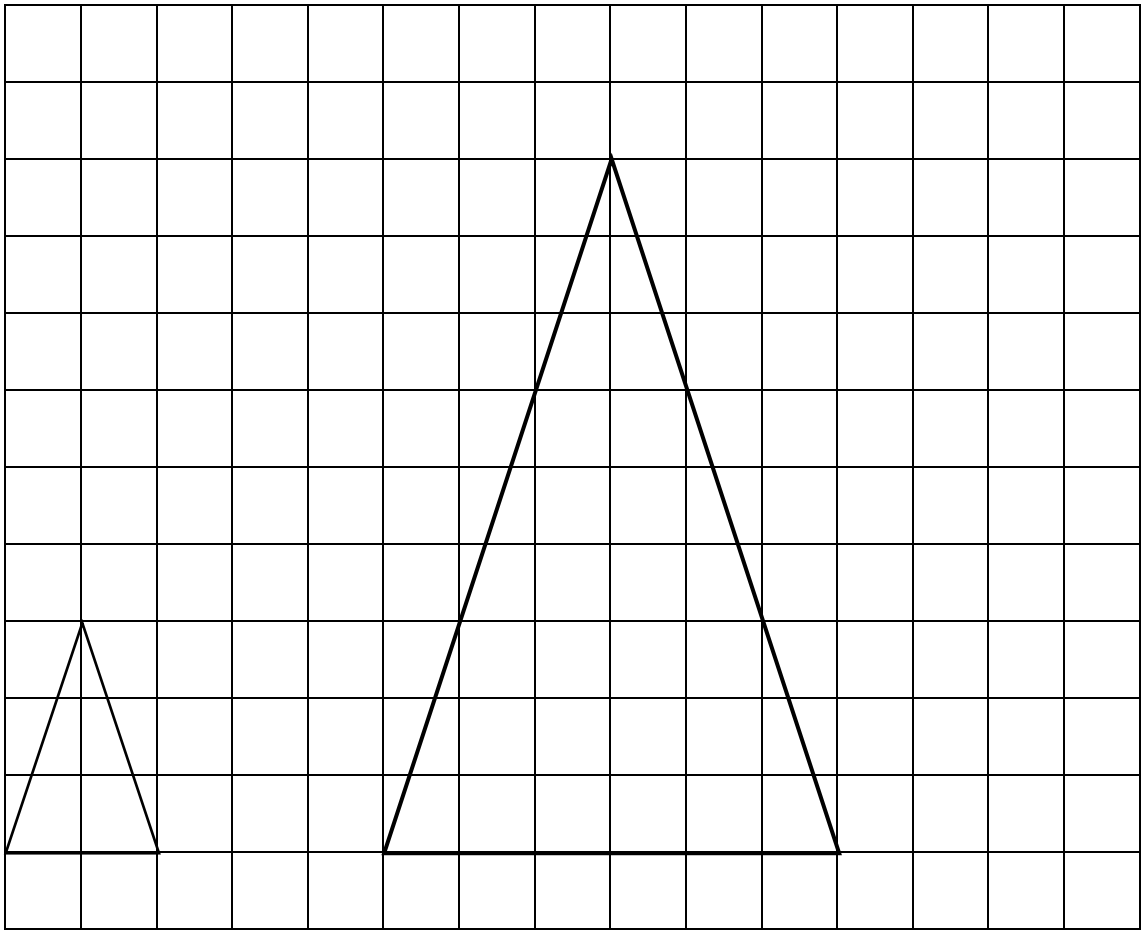
Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
23	144	P1 P1 P1 A1	for using the ratio, eg $x = 2y$ **or** $2y + 2y + y$ (= 180) **or** 2 + 2 + 1 (= 5 (parts)) for using angle facts to give an equation, eg $x + x + y = 180$ **or** $2y + 2y + y = 180$ **or** $y + w = 180$ **or** $5x \div 2 = 180$ oe **or** $w = 2x$ **or** for $180 \div 5$ (= 36) for a complete process eg $180 - (180 \div 5)$ cao	The first two marks may be awarded in either order Award P2 for $x = 72$ or $y = 36$
24	2400	P1 P1 P1 P1 A1	for setting up an equation in x eg $x + (3x + 1) + (2x - 5) = 44$ **or** $6x - 4 = 44$ **or** $x = 48 \div 6$ (= 8) for substituting "8" into either $(3x + 1)$ or $(2x - 5)$ eg $3 \times$ "8" + 1 (= 25) or $2 \times$ "8" – 5 (= 11) for finding the mass of one book eg 7500 ÷ "25" (= 300) for finding the mass of the books on shelf **A** eg "300" × "8" cao	
25	2.7	M1 A1	for use of density = mass ÷ volume eg 27 ÷ 10 oe	

Paper: 1MA1/1F				
Question	**Answer**	**Mark**	**Mark scheme**	**Additional guidance**
26	160 to 200	M1 M1 A1	rounds one figure appropriately (6, 8, 0.25 or 0.3) (dep) for carrying out an accurate calculation using 0.25 or 0.3 eg $6 \div 0.3 = 20$, $8 \div 0.25 = 32$, $6 \div 0.25 = 24$ **or** digits 16 Answer in the range 160 to 200 from appropriate rounding	Do not award any marks for an accurate calculation if then rounded
27 (a)	$6x^2 - 11x - 10$	M1 A1	for expanding bracket to obtain 4 terms with all 4 correct without considering signs or for 3 terms out of 4 correct with correct signs cao	NB $6x^2 - 11x$ or $-11x - 10$ can be considered 3 terms out of 4 correct with correct signs
(b)	$(x - 4)(x + 4)$	B1	oe	

Qu 8a

Place	Tally	Frequency
castle	𝍸 𝍸 I	11
farm	𝍸 II	7
museum	𝍸 I	6

Qu 11



Modifications to the mark scheme for Modified Large Print (MLP) papers: 1MA1 1F

Only mark scheme amendments are shown where the enlargement or modification of the paper requires a change in the mark scheme. Notes apply to both MLP papers and Braille papers unless otherwise stated.

The following tolerances should be accepted on marking MLP papers, unless otherwise stated below:
Angles: ±5º
Measurements of length: ±5 mm

PAPER: 1MA1_1F			
Question		**Modification**	**Mark scheme notes**
1		Wording added ‘five	Standard mark scheme
3		Letter ‘a’ changed to ‘p’.	Standard mark scheme but note change of letter
4		Wording added ‘Look at the diagram for Question 4 in the Diagram Booklet. It shows an angle marked x.’ Diagram enlarged. Angle rotated so the bottom line is horizontal. Angle moved outside of the angle arc and angle arc made smaller.	Standard mark scheme
7		“m” changed to “metres”	Standard mark scheme
8		Wording added ‘Look at the information for Question 8 in the Diagram Booklet.’ Wording ‘Here are the results’ removed and replaced with ‘The results are shown in the Diagram Booklet.’ Words replaced with single capital letters. Key added	Standard mark scheme
8	(a)	Wording added ‘below. There are six spaces to fill.’ Table enlarged. Wording added to the table ‘(C)’, ‘(F)’ and ‘(M)’.	Standard mark scheme
8	(c)	Wording added ‘Look at the diagram for Question 8(c) in the Diagram Booklet. It shows a grid.’ Wording added ‘on the grid in the Diagram Booklet.’ Diagram enlarged. Grid lines made black. Top two rows and right column removed. Braille: left and right vertical axis labelled.	Standard mark scheme but for Braille the B1 for labels to be awarded only for correct place labels on the horizontal axis.
9		Wording added ‘Look at the information for Question 9 in the Diagram Booklet. Selina has a bag of 22 counters.’ Information moved to the Diagram Booklet.	Standard mark scheme
10		Wording added ‘Look at the information for Question 10 in the Diagram Booklet. It shows’. Wording removed ‘Here are’. Frame removed.	Standard mark scheme

PAPER: 1MA1_1F			
Question		**Modification**	**Mark scheme notes**
11		Wording added ‘Look at the diagram for Question 11 in the Diagram Booklet. It shows triangle P and triangle Q on a grid. Describe the transformation that maps triangle P onto triangle Q. Two cut out shapes may be available if you wish to use them.’ Wording removed ‘On the grid, draw an enlargement of the triangle with a scale factor of 3.’ Triangle Q added to the diagram. Triangle P labelled. Diagram enlarged. Shading removed. Cut out shapes provided.	B1 for “Enlargement” B1 for “Scale factor 3” Award no marks if more than one transformation is given
12		In (a) wording added ‘Given that’. Letter ‘g’ changed to ‘m’. Letter ‘h’ changed to ‘n’. In (b) wording added ‘Given that’.	Standard mark scheme but note change of letter.
14		Wording added ‘Look at the diagram for Question 14 in the Diagram Booklet. It shows a grid.’ Diagram enlarged. For Braille: a (blank) table of values added with the words “You may use the table below if you wish”. Axis labels moved to the top of the vertical axis and to the right of the horizontal axis.	Standard mark scheme.
22		Wording added ‘Look at the diagram for Question 22 in the Diagram Booklet. It shows’. Wording removed ‘The’. Wording removed ‘lies’. Diagram enlarged. Cross changed to a dot.	Standard mark scheme
23		Wording added ‘Look at the diagram for Question 23 in the Diagram Booklet. It’. Wording removed ‘The diagram’. Diagram enlarged. Diagram rotated such that ABC is horizontal. Angles moved outside of the angle arcs and angle arcs made smaller. Wording added ‘Angle DAB = x° Angle DBA = y° Angle DBC = w°’	Standard mark scheme
24		Letter ‘x’ changed to ‘y’.	Standard mark scheme but note change of letter
27		Letter ‘xchanged to ‘y’.	Standard mark scheme but note change of letter

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