

# PiXL Practice Examination (Foundation tier, non-calculator)

## Answers

This set of answers is not a conventional marking scheme; while it gives a basic allocation of marks, its main purpose is to help students understand how to do each question and how they can avoid making mistakes. As such, its format is rather different from that of a normal mark scheme.

The following guidance is adapted from that issued by one of the examining boards.

### Types of mark

- M** Method marks are awarded for a correct method which could lead to a correct answer.
- A** Accuracy marks are awarded when following on from a correct method. It is not necessary to always see the method. This can be implied.
- B** Marks awarded independent of method.

### Working out

Usually, if the question asks students to show working, marks are not awarded to students who show no working. As a general principle, where the questions does not ask students to show working, a correct answer is awarded full marks. However, if the answer is incorrect, students can still obtain method marks, assuming that they show some valid working out. **An incorrect answer with no working out is always awarded zero.**

### Premature approximation

Rounding off too early can lead to inaccuracy in the final answer. This is normally penalised by 1 mark.

Q	Answer	Mark	Comments
1	168	B1	
2	16	B1	BODMAS (or BIDMAS, if you prefer...)
3	0.05	B1	
4	8	B1	
5 (a)	Either $529 - 144 = 385$ or (their $385$ ) + $3271$ correctly evaluated	M1	
	3656	A1	Correct answer only
5 (b)	Sight of any valid method attempted	M1	Long multiplication, partitioning, etc; must have at least one correct calculation (for example $40 \times 20 = 800$ ) to justify <b>M1</b> .
	Chosen method followed correctly	M1	All components for chosen method in place; you can only have one small error now.
	1296	A1	Correct answer only

Q	Answer	Mark	Comments																
6	Gives £80 to Stuart	B1	$320 \div 4$																
	Gives £64 to Sean	B1	$320 \div 5$																
	176	A1	Correct answer only																
7	$200 \text{ cm} \div 8 = 25 \text{ cm}$ or $2 \text{ m} \div 8 = 0.25 \text{ m}$ or $\frac{1}{4} \text{ m}$	B1	Probably easiest to change to centimetres here, but note absence of units on the answer space.																
	$75 \text{ cm}$ or $0.75 \text{ m}$ or $\frac{3}{4} \text{ m}$	A1	Correct answer only																
8 (a)	16 minutes.	A1																	
8 (b)	Either First train Chris can catch is 2344 departure from Navigation Road, or 0015 arrival at Greenbank or 10 minutes added to 12:15am or to 0015.	M1	Anything that makes it clear you have found the right train. Long wait at Navigation Road...																
	12:25am	A1	Award <b>M1 B1</b> if correct (must be 12 hour clock format), even if no working seen.																
	<b>Additional guidance</b>																		
	Must be in correct 12 hour clock format. 0025, 0025am, 12:25 (without am) all A0																		
9	$\sqrt{402} \approx 20$	M1																	
	$40 \times 30 \div (\text{their } 20)$	M1	Both 40 and 30 must be correct for <b>M1</b> .																
	60	A1																	
	<b>Additional guidance</b>																		
	60 seen with no working out		<b>M0 M0 A1</b>																
10	34	B1	Note $17 \div 0.5$ <b>not</b> $17 \times 0.5$ . Dividing by a positive number smaller than 1 will give a bigger answer. $17 \div 0.5$ is equivalent to $17 \times 2$																
11	$\frac{4}{7}$	B1																	
12	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>for</th> <th>against</th> <th>diff</th> </tr> </thead> <tbody> <tr> <td>Rovers</td> <td>31</td> <td><b>18</b></td> <td>13</td> </tr> <tr> <td>Spurs</td> <td><b>14</b></td> <td>25</td> <td>-11</td> </tr> <tr> <td>Town</td> <td>34</td> <td>38</td> <td><b>-4</b></td> </tr> </tbody> </table>		for	against	diff	Rovers	31	<b>18</b>	13	Spurs	<b>14</b>	25	-11	Town	34	38	<b>-4</b>	B3	<b>B1</b> for each correct answer.
	for	against	diff																
Rovers	31	<b>18</b>	13																
Spurs	<b>14</b>	25	-11																
Town	34	38	<b>-4</b>																

Q	Answer	Mark	Comments
13	60% of 25 is 15	B1	May be implied
		B1	Four black squares all shaded (to complete symmetry of shape)
		B1	One of A, B or C shaded (so 15 squares shaded in total and shape symmetrical).
	<b>Additional guidance</b>		
			Allow use of triangles (see example) to make 15th square if none of squares A, B or C is shaded.
			<b>B1</b>
14	$\frac{7}{8} \times \frac{6}{5}$	M1	Can award <b>M</b> marks for other methods as appropriate.
	$\frac{42}{40}$ or equivalent		
	$1\frac{1}{20}$	A1	Correct answer only; fully simplified mixed number
15	Valid method to obtain 5% of £22.40 (= £1.12)	M1	
	£22.40 + £1.12 = £23.52	A1	£1.12 must be correct for award of <b>A1</b> .
	Valid method to obtain 12% of £21 (= £2.52)	M1	
	£21 + £2.52 = £23.52	A1	£2.52 must be correct for award of <b>A1</b> .
	"The cost for 'Friendly Fares' and 'Travel Savers' is the same" ticked.	B1	Both totals and all working must be correct. No working means <b>M0 A0 M0 A0 B0</b>
<b>16 (a)</b>	33 976 000	B1	
<b>16 (b)</b>	1370	B1	
17	<b>Either</b> clear evidence of a method for ordering seen <b>or</b> any correct equivalence stated for a pair of decimals, fractions or percentages (for example that $\frac{3}{4} = 0.75$ )	M1	$\frac{5}{8} = 0.625$
	$\frac{5}{8}$ , 65%, $\frac{3}{4}$ , 0.8	B1	One mistake, award <b>M1 B0</b> You should write the numbers as they were given (so 65%, not 0.65) in the answer.

Q	Answer	Mark	Comments
18 (a)	Attempts to divide 93.72 by 12	M1	
	(£) 7.81	A1	
18 (b)	Valid method	M1	Must see attempt to halve £93.72 and attempt to divide the result by 11.
	(Captain receives £) 46.86	M1	
	(others each receive £) 4.26	A1	
19 (a)	<b>Alternative method 1</b> (finds length of pen drive)		
	Attempts to use common denominator at any point in working out.	M1	May be implied
	Finds length of pen drive without plug	M1	$1\frac{5}{6} - \frac{3}{6} = 1\frac{2}{6}$ or equivalent
	"their $1\frac{2}{6}$ " + $\frac{3}{4}$	M1	$1\frac{4}{12} + \frac{9}{12} = 2\frac{1}{12}$ or equivalent (may be an improper fraction, $\frac{25}{12}$ ). Do not allow $1\frac{13}{12}$ , or similar.
	$2\frac{1}{12}$ (inches)	A1	Correct answer only
	<b>Alternative method 2</b> (finds "spare" length inside lid)		
	Attempts to use common denominator at any point in working out.	M1	May be implied
	Finds "spare" length inside lid	M1	$\frac{3}{4} - \frac{2}{4} = \frac{1}{4}$ or equivalent (may be in eighths)
	"their $\frac{1}{4}$ " + $1\frac{5}{6}$	M1	$\frac{3}{12} + 1\frac{10}{12} = 2\frac{1}{12}$ or equivalent (may be an improper fraction, $\frac{25}{12}$ ). Do not allow $1\frac{13}{12}$ , or similar.
	$2\frac{1}{12}$ (inches)	A1	Correct answer only
19 (b)	Attempts $\frac{5}{8} \times 6$	M1	$\frac{5}{8} \times 6 = 3\frac{6}{8}$ or equivalent (may be an improper fraction, $\frac{30}{8}$ ). Any evidence that denominator has been multiplied by 6 must award <b>MO</b> .
	$3\frac{3}{4}$ (inches)	A1	Correct answer only

Q	Answer	Mark	Comments
20 (a)	$10\pi + 35$	B1	Check that you know which is the diameter, which is the radius - and <b>learn</b> $C = \pi \times D$
20 (b)	$360 \div 7$ (= 51 with remainder 3)	M1	<b>M1</b> for attempting to divide $360^\circ$ by 7
	$51\frac{3}{7}$	A1	
21	Any multiplication whose result is 120	M1	Must be integers only, and at least one of the factors seen must be prime.
	$2 \times 2 \times 2 \times 3 \times 5$	M1	Condone omission of multiplication signs for <b>M1</b> if all prime factors are correct.
	$2^3 \times 3 \times 5$	A1	Correct answer only
22	<b>Alternative method 1</b> (standard "distance $\div$ time" calculation)		
	2 hours 30 minutes = 2.5 hours or 2 hours 30 minutes = $2\frac{1}{2}$ hours	B1	No point (or mark for) changing to 150 minutes (even if it is correct).
	$145 \div 2.5$ or $145 \div 2\frac{1}{2}$	M1	<b>M1</b> for attempt to divide
	58	A1	Correct answer only
	<b>Alternative method 2</b> ("chunking" or similar)		
	2 hours 30 minutes = 5 periods of 30 minutes	B1	Other periods of time (for example 10 periods of 15 minutes, followed by $145 \div 10$ and $14.5 \times 4$ ) possible.
	$145 \div 5 = 29$ followed by $29 \times 2$	M1	
	58	A1	Correct answer only
	23 (a)	$2x + x = 15$	M1
5		A1	
23 (b)	$8 \times 0 + 7 \times 1 + 10 \times 2 + 5 \times 3$ (= 42)	M1	Allow follow through from incorrect answer to <b>14 (a)</b> for <b>M1 M1</b> .
	"their 42" $\div 30$	M1	
	1.4	A1	Question specifies use of a decimal, so don't accept $1\frac{2}{5}$ , etc.

Q	Answer	Mark	Comments	
24 (a)	Either 2.04 or $10^5$ seen.	M1		
	$2.04 \times 10^5$	A1	Correct answer only	
24 (b)	$3 \times 10^5 \times 4 = 12 \times 10^5 = 1.2 \times 10^6$	M1		
	Norfolk	B1	Correct answer only. If no working present, "Norfolk" is <b>M0 B1</b>	
24 (c)	<b>Any of</b> $9.79 \times 10^5 \approx 10.2 \times 10^5$ <b>or</b> $0.979 \times 10^6 \approx 1.02 \times 10^6$ <b>or</b> difference between $9.79 \times 10^5$ and $1.02 \times 10^6$ is approximately $0.5 \times 10^5$ or $0.05 \times 10^6$ or $5 \times 10^4$	M1	Attempts to compare differences of counties; look for numerical evidence or convincing worded argument about Essex and Somerset.	
	Essex <b>and</b> Somerset	B1	Both must appear. If both names are correct but without working, award full marks anyway (ie <b>M1 B1</b> )	
25	Attempts to use $A = \pi \times r^2$ to find area of circle. (= $36\pi$ )	M1	May be implied.	
	(their $36\pi$ ) $\div 4$ (= $9\pi$ ) for area of sector.	M1	Must see $\div 4$ .	
	Area of triangle = $\frac{1}{2} \times 6 \times 6$ (= 18)	M1	or equivalent	
	Attempts (their $9\pi$ ) – (their 18)	M1		
	$9\pi - 18$ , or $9(\pi - 2)$	A1	or equivalent	
	<b>Additional guidance</b>			
	Must be in terms of $\pi$ , but all method marks can be awarded if use of decimals is attempted.		<b>A0</b>	
	Do not accept attempt to change $9\pi - 18$ to a decimal. Even if $9\pi - 18$ , or $9(\pi - 2)$ is correct, penalise subsequent working to 10.27..., etc.		<b>A0</b>	
Watch out for $9\pi - 18 = -9\pi$ , or similar.		<b>A0</b>		
26	1	B1	Learn sin, cos, tan, for $30^\circ$ , $45^\circ$ , $60^\circ$ , $90^\circ$	
27	$x^2 = 5^2 + 12^2$	M1	Attempts Pythagoras theorem; allow a minor slip for <b>M1</b> , but must see terms squared.	
	$x = \sqrt{169}$	M1		
	13	A1		