



Mental Mathematics Pack

Curriculum for Excellence LEVEL 3 (Book 3b)

This Assessment Pack has been designed to enhance mental Mathematics.

It is primarily designed to complement TeeJay's **Book 3b**, although it can be used as a free-standing unit for Mental Mathematics.

Each of the 20 assessments has 10 mental questions which cover TJ Book 3b in sequence.

The Pack also includes a set of 20 Support Sheets, each one corresponding to a particular mental assessment and consists of 3 practice questions for each mental assessment question.


This Mental Pack supports TeeJay CfE Book 3b

Test No	Covers the work of
1	Book 3a
3	Book 3a
5	Book 3a
7	Book 3a + Ch 1-2
9	Book 3a + Ch 1-5
11	Book 3a + Ch 1-8
13	Book 3a + Ch 1-11
15	Book 3a + Ch 1-13
17	All of CfE Level 3
19	All of CfE Level 3

1	Book 3a
3	Book 3a
5	Book 3a
7	Book 3a + Ch 1-2
9	Book 3a + Ch 1-5
11	Book 3a + Ch 1-8
13	Book 3a + Ch 1-11
15	Book 3a + Ch 1-13
17	All of CfE Level 3
19	All of CfE Level 3

Test No	Covers the work of
2	Book 3a
4	Book 3a
6	Book 3a + Ch 1-2
8	Book 3a + Ch 1-5
10	Book 3a + Ch 1-8
12	Book 3a + Ch 1-11
14	Book 3a + Ch 1-13
16	All of CfE Level 3
18	All of CfE Level 3
20	All of CfE Level 3

2	Book 3a
4	Book 3a
6	Book 3a + Ch 1-2
8	Book 3a + Ch 1-5
10	Book 3a + Ch 1-8
12	Book 3a + Ch 1-11
14	Book 3a + Ch 1-13
16	All of CfE Level 3
18	All of CfE Level 3
20	All of CfE Level 3

When the symbol  appears, the teacher should copy the question onto the board, but remove it prior to the next question being read out.

TeeJay Publishers Mental Mathematics Assessments



TeeJay Book 3b

Test No. 3
Book 3a

Class



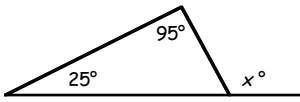


No.

Teacher

Date

Read each question twice -

Leave a couple of seconds between each reading
and approx 10 seconds between questions.

No.	Question	Answer	No. with wrong answer
1.	There are 215 800 people at a political demonstration. Round this number to 2 significant figures.	220 000	
2.	 Write down the answer to :- $10 - (5 - 3) \times 4$.	2	
3.	David scored 18 out of 20 in his maths test. What was David's score as a percentage ?	90%	
4.	 What is the size of the angle marked x in this figure ? 	120°	
5.	Write the answer to negative 6 times 4, divided by negative eight.	3	
6.	Find three eighths of 144 dollars.	\$54	
7.	 What is the value of this expression, given that $a = 3$ and $b = 4$? $\frac{7a - 9}{ab}$	1	
8.	There are 21 red cars and 15 blue cars in a car park. Express the ratio of red cars to blue cars and simplify as far as possible.	7 : 5	
9.	If a plane flies at 450 miles per hour, how far will it travel between 10 am and 11.30 am ?	675 m	
10.	 Find the value of :- $4\frac{2}{3} - 1\frac{1}{2}$.	$3\frac{1}{6}$	

TeeJay Publishers Mental Mathematics Assessments



TeeJay Book 3b

Test No. 4
Book 3a

Class




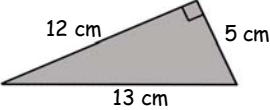
No.

Teacher

Date

Read each question twice -

Leave a couple of seconds between each reading
and approx 10 seconds between questions.

No.	Question	Answer	No. with wrong answer
1.	Write the answer to 3000×421 .	1263000	
2.	Write the mixed number $7\frac{6}{11}$ as a top-heavy (<i>improper</i>) fraction.	$\frac{83}{11}$	
3.	Find the answer to negative nineteen subtract negative 18.	-1	
4.	Express $12\frac{1}{2}\%$ as a fraction in its simplest form.	$\frac{1}{8}$	
5.	 Round each number to 1 significant figure, then find an estimate for :- $592\,500 \div 187$	3000	
6.	Find $66\frac{2}{3}\%$ of £180.	£120	
7.	 Simplify this expression as far as possible :- $10a - 2(a - 3b)$.	$8a + 6b$	
8.	The ratio of starlings to crows in my garden was 2 to 3. There were 18 starlings in the garden. How many crows were there?	27	
9.	A cuboid measures 8 cm by 6 cm by 20 cm. Calculate the volume of the cuboid in cubic centimetres.	960 cm^3	
10.	 Calculate the area of this right angled triangle :- 	30 cm^2	



**TeeJay
Maths**
ADDING FUN TO LEARNING

Mental Mathematics Pack (Support Sheets)

Curriculum for Excellence Level 3

The following Support Sheets to be used with TJ Book 3b.

These sheets are meant to be used in conjunction with TeeJay's **Mental Pack 3b**.

They can be used in a variety of ways :-

Scenario 1 :-

The teacher could, before attempting a particular 10 question test, go over the associated questions, 1a, 2a, 3b etc with the class, then allow them to attempt 1b, 2b, 3b, etc in the class on their own and possibly attempt 1c, 2c, 3c etc at home.

This would prepare them for the actual 5 minute mental test the following day.

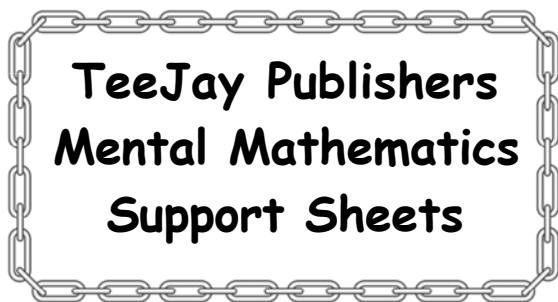
Scenario 2 :-

The teacher could, allow the class to attempt 1a, 2a, 3b etc without assistance and go over the questions, pointing out any errors. The class could then be allowed to attempt 1b, 2b, 3b, etc in class and then possibly attempt 1c, 2c, 3c etc at home.

This would prepare them for the actual 5 minute mental test the following day.

Scenario 3 :-

The teacher could read out question 1a, allow the class to attempt it, and go over the answers or methods used to gain the answer. Then repeat for 2a, 3b, 4a, etc. The teacher could then read questions 1b, 2b, 3b, etc as a pre-test and leave 1c, 2c, 3c, etc as post test consolidation.



TeeJay Book 3b

Support for Test 1.

1. Round to one significant figure :-

- a 3.66 b 0.843 c 0.0621.

2. a Find 452×200 . b Find 200×456 . c Find 314×300 .

3. a Find $6 + 3 \times 3$. b Find $7 - 2 \times 3$. c Find $3 \times 6 - 4 \times 2$.

4. a Two angles in a triangle measure 40° and 30° . What is the size of the other angle ?
b Find the size of the other angle in a triangle if two are 45° and 25° .
c One angle of an isosceles triangle is 110° . What is the size of the other 2 angles ?

5. Express each of these as a fraction in its simplest form :-

- a 65% b 34% c 16%.

6. a Find $10 + (-3)$. b Find twenty subtract negative five.
c Find ten subtract negative two.

7. a Find the value of $3x + 2y - 10$, given that $x = 2$ and $y = 3$.
b Given $x = 5$ and $y = 6$, find the value of $4x + 2y - 20$.
c What is the value of $5x + 4y - 5$, given $x = 3$ and $y = 1$?

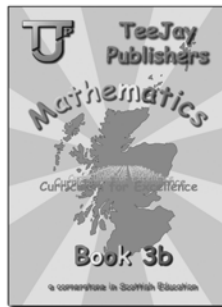
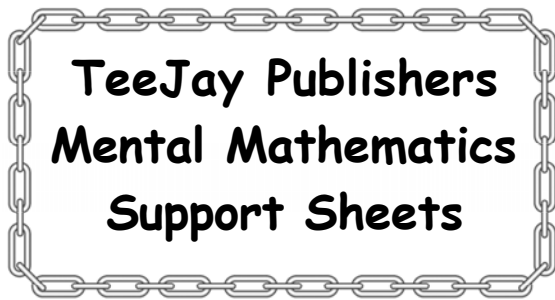
8. a Find five times negative two, times negative three.
b What is ten times negative four, times negative two ?
c Multiply together the numbers four, negative five and negative six.

9. Write the answer to each of these as a fraction :-

- a a half + a quarter b a third plus a quarter c a fifth add a half.

10. Write each of these in the ratio of red to blue in its simplest form :-

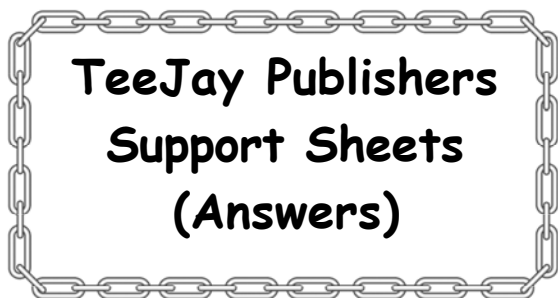
- a 16 red, 10 blue b eight red, twelve blue c fifteen red, twenty blue.



TeeJay Book 3b

Support for Test 2.

1. Round each number to one significant figure and find an approximate answer to :-
a 398×19 b 0.814×39 c 0.715×52 .
2. Find :-
a $8 + (-7) - (-2)$ b $5 + (-2) - (-1)$ c $20 + (-7) - (-10)$.
3. a Find 40% of £130. b What is 30% of £360 ? c Find 70% of 310 kg.
4. Simplify each of the following :-
a $4x + 3y + 5x - 2y$ b $8c - 8d + 5c + 5d$ c $10p - 8k - 3p + 7k$.
5. a Divide 32 000 by 400. b Find $480\,000 \div 800$. c What is $240\,000 \div 600$?
6. Find :-
a $84 \div (-7)$ b $88 \div (-4)$ c $(-96) \div (-6)$.
7. The ratio of men to women in an office is 3 : 2. How many :-
a men if there are 6 women b women if there are twelve men
c men if there are twenty four women ?
8. Find the volume of a cube which has side length :-
a 3 cm b ten centimetres c nine centimetres.
9. Simplify :-
a $\frac{3}{4} - \frac{1}{2}$. b $\frac{1}{3} - \frac{1}{4}$. c $\frac{4}{5} - \frac{1}{3}$.
10. Calculate the speed of each journey :-
a It takes from noon to one thirty to travel 6 km.
b Cycling 15 km, starting at three o'clock and ending at four thirty.
c A 24 km train journey, departing at six forty and arriving at eight ten.



TeeJay Book 3b

ANSWERS to Sheets 17 - 20

Support Sheet for Test 17 :-

1. a 1100 b 70 c 2000
2. a 84 b 70 c 20
3. a 1 hour and 6 minutes
b 1 hour and 15 minutes
c 5 minutes
4. a 16 b 25 c 36
5. a $3\frac{1}{2}$ b $2\frac{1}{8}$ c $4\frac{1}{2}$
6. a 4 b 5 c -2
7. a £4000 b £280 c £2
8. a 4 b 0 c 56
9. a 10% b 5% c 12.5%
10. a £250 b £320 c £600

Support Sheet for Test 18 :-

1. a 35 000 000 b 280 000 c 450 000
2. a -50 b -32 c -2
3. a £17.50 b £6 c £4.50
4. a 300 b 150 c 0
5. a 5 : 6 b 4 : 5 c 5 : 8
6. a 12 b 10 c 20
7. a 60° b 55° c 65°
8. a 2, 2, 3 b 2, 3, 5 c 3, 5, 5
9. a 37 b 178 c 136
10. a £9.95 b £15.92 c £23.88

Support Sheet for Test 19 :-

1. a 5000 b 2500 c 500
2. a 1 b 1 c 5
3. a 6 cm b 4 cm c 8 cm
4. a $\frac{12}{25}$ b $\frac{3}{50}$ c $\frac{14}{25}$
5. a $4\frac{1}{4}$ b $2\frac{1}{8}$ c $4\frac{1}{6}$
6. a 4 b 5 c 10
7. a 5 b 14 c 9
8. a £36 b £36 c £24
9. a 7 b 26 c 21
10. a 20° b 70° c 115°

Support Sheet for Test 20 :-

1. a 12 b 0 c 7
2. a 4 : 6 : 7 b 6 : 3 : 2 c 4 : 11 : 8
3. a 10 b -4 c 12
4. a 87 b 160 c 105
5. a 27 cm^3 b $125 000 \text{ cm}^3$ c $64 000 \text{ cm}^3$
6. a mean (4) b mode (12) c mean (5)
7. a 100 000 b 1 200 000 c 300 000
8. a $29 - 3x$ b $5x - 18$ c $2 - 3x$
9. a £10.10 b £2.03 c £4.20
10. a 18 b 6 c 14

Level 3 Mental Test (Bk 3b).

Checklist of Topic Coverage.

Topic	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Round to sig figs	*		*		*															
Round to 1 sig fig and \times or \div		*		*				*		*				*		*		*		*
\times and \div by 20, 300, 4000	*	*		*	*	*		*	*		*		*		*		*		*	
BODMAS	*		*		*	*		*		*		*		*			*			*
Missing angles in figures	*		*		*											*			*	
Integers including - (-8)	*	*		*		*	*		*		*		*		*		*		*	
Multiply/Divide Integers	*	*	*		*	*		*		*		*		*		*		*		*
Change dec \leftrightarrow frac \leftrightarrow %age	*		*	*	*		*		*		*			*			*		*	
Find %, frac, dec of amount		*	*	*	*		*	*		*		*	*	*	*		*	*		*
$+$ - \times \div algebraic terms		*		*		*			*		*									*
Evaluate expressions	*		*		*		*				*		*			*		*		
Areas of quads/triangles				*						*					*				*	
Frac $+$ \div - \times mixed+top heavy	*	*	*	*	*	*	*		*		*						*		*	
Simplify Ratios	*	*	*	*		*		*		*		*		*		*		*		*
Volume		*		*					*				*							*
TDS (end of 3a)		*	*		*		*				*						*			
Ch 1 Powers and Roots						*	*	*	*	*		*	*		*	*		*	*	*
Ch 2 Money topics						*	*	*	*				*		*			*		*
Ch 3 Mults/Factors/Primes								*	*	*	*	*		*		*		*	*	
Ch 5 Harder Equations								*	*		*			*			*			
Ch 6 Z, F and X angles										*	*	*			*			*		
Ch 8 Fractions \times and \div										*	*	*	*		*	*			*	
Ch 10 Proportion											*	*	*		*	*	*		*	
Ch 11 Mean/Median/Mode											*	*	*		*		*		*	
Ch 13 Probability													*	*		*				
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