High School Mathematics Test 2014

Year 8	Indices		Non Calculator Section
• In nu	Knowledge Assessed: vestigate index notation and represent whole numbers as products of imbers (ACMNA149) se index notation with numbers to establish the index laws with positices and the zero index (ACMNA182)		Name
Answer (all questions in the spaces provided on this te Writing the answer in the box provided. or	st paper by:	
Show an	Shading in the bubble for the correct answey working out on the test paper. Calculators		
1.	$5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 = ?$	□ 5 ⁷	□ 7 ⁵
2.	$4^{5} = ?$ $4 \times 4 \times 4 \times 4$ $4 + 4 + 4 + 4 + 4$	•	$4 \times 4 \times 4 \times 4$ $5 \times 5 \times 5$
3.	Write $6 \times 6 \times 6 \times 6$ in index notation.		
4.	$2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 3 = ?$	1	
			3 ⁴ 3 ⁴
5.	$6^5 \times 6^7 = ?$ $\square 6^2 \qquad \square 6^{12}$	☐ 36 ¹²	☐ 6 ³⁰
6.	Write the answer to $7^3 \times 7^5$ in index notation	on	
7.	$3^{16} \div 3^8 = ?$ $\square 1^2 \qquad \square 3^2$	□ 3 ⁸	☐ 3 ²⁴

8.

 $\frac{8^7}{8^4} = ?$

9.

 $5^{18} \div 5^9 = ?$

 $\bigcap 1^2$

 \Box 5²

 \Box 5⁸

 \square 5⁹

10.

Write the answer to $7^{15} \times 7^3 \times 7^2$ in index notation

11.

 $2^9 \times 2^5 \times 2^{10} = ?$

 \square 2⁶

 \square 2²⁴

 \square 2⁴⁵

 \square 2⁴⁵⁰

12.

 $8^{15} \div 8^{14} = ?$

13.

 $6^8 \div 6^8 = ?$

 \Box -1

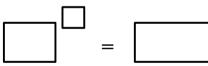
 \Box 0

□ 1

□ 6

14.

Write the answer to $7^{10} \div 7^{10}$ in index notation and give its numerical value.



15.

 $\frac{3^5 \times 3^7}{3^6} = ?$

 \square 3²

 \square 3⁶

 \square 3¹⁰

 \square 3¹²

16.

 $\frac{5^{6} \times 5^{8}}{5^{3}} = ?$

17.

 $\left(2^5\right)^3 = ?$

 \square 2²

 \square 2⁸

 \Box 4⁸

 \square 2¹⁵

<u>Indices</u>

Test

2014

 $\left(7^{8}\right)^{4} = ?$ 18.

19.

$$\left(2^2 \times 2^3\right)^4 = ?$$

$$\square 2^{20}$$

 \square 2²⁴

☐ 4²⁰

☐ 4²⁴

20.

$$\left(\frac{5^{12}}{5^3}\right)^4 = ?$$

High School

Mathematics Test 2014					
Yea 8	r	Indices		Calculator Allowed Short Answer Section	
				Name	
Answer all questions in the spaces provided on this test paper by: Writing the answer in the box provided. or Shading in the bubble for the correct answer from the four choices provided. Show any working out on the test paper. Calculators are allowed.					
1.	$3^6 = ?$ $\square 18$	<u> </u>	□ 36	729	
2.	Evaluate 4 ⁸ .				
3.	$2^{17} \times 2^{28} =$?			

1.	$3^{\circ} = ?$				
	□ 18	<u> </u>	□ 36	729	
2.	Evaluate 4 ⁸ .				
3.	$2^{17} \times 2^{28} = ?$	11	45	476	
	☐ 2 ¹¹	<u> </u>	<u> </u>	☐ 2 ⁴⁷⁶	
4.	$6.5^9 \times 6.5^{12} = ?$				
5.	$5^{39} \div 5^{13} = ?$	2	24	52	
	☐ 1 ³	□ 5 ³	<u> </u>	5 ⁵²	
6.	Write the answer to	$7^{39} \div 7^{37}$ in index	notation and give its	numerical value.	
7.	$\frac{8^{99}}{8^{11}} = ?$				
	1 ⁸⁸	\bigcap 8 9	☐ 8 ⁸⁸	$\bigcap 8^{110}$	

Indices

Test

2014

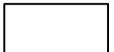
- \square 8¹²
- \square 8¹⁷
- **8**60
- ☐ 64¹⁷

9.
$$6^7 \times 6^5 \times 6^8 = ?$$

	г	
	М	
	-	

- 10. Simplify $18^5 \div 18^5 = ?$
 - \Box 0
- \square 1
- □ 18
- □ 90

11. Evaluate 2.45° .



- 12. Which of the following has a value of 1?
 - \square 75 0
- \square 75¹
- \square 75³

13. $2^{18} \div 2^6 \div 2^3 = ?$



- When p = 3, what is the value of $\frac{p^{12}}{p^9}$?
 - ☐ 3
- ☐ 27
- **81**

- 15. $\left(5^9\right)^6 = ?$
 - ____ 5¹⁵
- \Box 5⁵⁴
- \Box 5⁶⁹
- \bigcap 5⁹⁶

16. $\left(3^{5}\right)^{4} = ?$



- $\frac{10^3 \times 10^9}{10^2} = ?$
 - \square 1⁶
- \square 10⁶
- \square 10⁸
- \bigcap 10¹⁰

<u>Indices</u>

Test

2014

Simplify $\frac{8^8 \times 8^9}{8^{12}}$.

 $\frac{12^{11} \times 12^5}{12^2 \times 12^3} = ?$

 \square 12²

 \square 12³

12¹¹

12¹²

Simplify $\frac{8^5 \times 8^9}{\left(8^4\right)^2}$.

High School Mathematics Test 2014

Indices ANSWERS

Non Calculator Section (1 mark each)

Q no		Answer
1.	$5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 = 5^{7}$	3 rd Answer
2.	$4^5 = 4 \times 4 \times 4 \times 4 \times 4$	2 nd Answer
3.	$6 \times 6 \times 6 \times 6 = 6^4$	64
4.	$2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 3 = 2^5 \times 3^4$	4 th Answer
5.	$6^5 \times 6^7 = = 6^{12}$	2 nd Answer
6.	$7^3 \times 7^5 = 7^8$	78
7.	$3^{16} \div 3^8 = 3^8$	3 rd Answer
8.	$\frac{8^7}{8^4} = 8^3$	8 ³
9.	$5^{18} \div 5^9 = 5^9$	4 th Answer
10.	$7^{15} \times 7^3 \times 7^2 = 7^{20}7^{20}$	7 ²⁰
11.	$2^9 \times 2^5 \times 2^{10} = 2^{24}$	2 nd Answer
12.	$8^{15} \div 8^{14} = 8^1 = 8$	8

13.	$6^8 \div 6^8 = 6^0 = 1$	3 rd Answer
14.	$7^{10} \div 7^{10} = 7^0 = 1$	$7^0 = 1$
15.	$\frac{3^5 \times 3^7}{3^6} = \frac{3^{12}}{3^6} = 3^6$	2 nd Answer
16.	$\frac{5^6 \times 5^8}{5^3} = \frac{5^{14}}{5^3} = 5^{11}$	5 ¹¹
17.	$\left(2^{5}\right)^{3} = 2^{5 \times 3} = 2^{15}$	4 th Answer
18.	$\left(7^{8}\right)^{4} = 7^{8 \times 4} = 7^{32}$	7 ³²
19.	$\left(2^2 \times 2^3\right)^4 = \left(2^5\right)^4 = 2^{20}$	1 st Answer
20.	$\left(\frac{5^{12}}{5^3}\right)^4 = \left(5^9\right)^4 = 5^{36}$	5 ³⁶

High School Mathematics Test 2014

Calculator Allowed Short Answer Section (1 mark each)

Q no		Answer
1.	$3^6 = 729$	4 th Answer
2.	$4^8 = 65\ 536$	65 536
3.	$2^{17} \times 2^{28} = 2^{45}$	3 rd Answer
4.	$6.5^9 \times 6.5^{12} = 6.5^{21}$	6.5 ²¹
5.	$5^{39} \div 5^{13} = 5^{26}$	3 rd Answer
6.	$7^{39} \div 7^{37} = 7^2 = 49$	$7^2 = 49$
7.	$\frac{8^{99}}{8^{11}} = 8^{88}$	3 rd Answer
8.	$8^3 \times 8^4 \times 8^5 = 8^{12}$	1 st Answer
9.	$6^7 \times 6^5 \times 6^8 = 6^{20}$	6 ²⁰
10.	$18^5 \div 18^5 = 18^0 = 1$	2 nd Answer
11.	2.450 =1	1
12.	$75^{0} = 1$	1 st Answer
13.	$2^{18} \div 2^6 \div 2^3 = 2^{12} \div 2^3 = 2^9$	29

14.	When $p = 3$; $\frac{p^{12}}{p^9} = p^3 = 3^3 = 27$	3 rd Answer
15.	$\left(5^9\right)^6 = 5^{54}$	2 nd Answer
16.	$\left(3^{5}\right)^{4} = 3^{20}$	3 ²⁰
17.	$\frac{10^3 \times 10^9}{10^2} = \frac{10^{12}}{10^2} = 10^{10}$	4 th Answer
18.	$\frac{8^8 \times 8^9}{8^{12}} = \frac{8^{17}}{8^{12}} = 8^5$	8 ⁵
19.	$\frac{12^{11} \times 12^{5}}{12^{2} \times 12^{3}} = \frac{12^{16}}{12^{5}} = 12^{11}$	3 rd Answer
20.	$\frac{8^5 \times 8^9}{\left(8^4\right)^2} = \frac{8^{14}}{8^8} = 8^6$	86