



Grade 7: Chapter 3 Test – Powers and Roots

Student Name		Class		Date	
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MULTIPLE CHOICE QUESTIONS: NO CALCULATOR ALLOWED

1	Write 5.325×10^4 in standard form.	
	A	0.00005325
	B	0.0005325
	C	53,250
	D	53,250,000

2	The population of Oman is 4.25 million people. Express this number in scientific notation.	
	A	4.25×10^3
	B	42.5×10^3
	C	0.425×10^6
	D	4.25×10^6

3	Find the value of w^3 if $w = -3$.	
	A	-27
	B	-9
	C	9
	D	27

4	Which expression is equivalent to $\frac{1}{4^3}$?	
	A	-4^3
	B	-4^{-3}
	C	4^{-3}
	D	4^{-1}



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5	What is the product of $4x^2$ and $5x^7$?	
	A	$20x^9$
	B	$9x^9$
	C	$9x^{14}$
	D	$20x^{14}$

6	Simplify the expression $(1.3 \times 10^3) + (7.4 \times 10^3)$.	
	A	8.7×10^3
	B	87×10^3
	C	8.7×10^6
	D	8.7×10^9

7	Find the product of 3.8×10^{-6} and 1.5×10^2 .	
	A	5.3×10^{-12}
	B	5.7×10^{-12}
	C	5.3×10^{-4}
	D	5.7×10^{-4}

8	Find the sum of $\sqrt{81}$ and $\sqrt{144}$.	
	A	-22
	B	-21
	C	21
	D	22

9	Find the product of $\sqrt[3]{125}$ and $\sqrt[3]{27}$.	
	A	8
	B	15
	C	53
	D	75



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10	Between which two consecutive integers does $\sqrt{55}$ lie?	
	A	5 and 6
	B	7 and 8
	C	8 and 9
	D	9 and 10

MULTIPLE CHOICE SECTION:

/10



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CONSTRUCTED RESPONSE QUESTIONS: CALCULATOR ALLOWED

11	Scientists have discovered that many mammals can expect to live for 1.5 billion heartbeats. Write this number in standard form and scientific notation.		
	Standard Form: _____ Scientific Notation: _____	marks:	/ 2
12	Using a positive exponent, write an expression equivalent to $\left(\frac{2}{7}\right) \cdot \left(\frac{2}{7}\right) \cdot \left(\frac{2}{7}\right) \cdot \left(\frac{2}{7}\right) \cdot \left(\frac{2}{7}\right)$.		
		marks:	/ 2
13	Write the following numbers in standard form and order from least to greatest. 3.13×10^{-4} , 0.0313 , 3.03×10^{-4} , 0.00303 , and 3×10^{-4}		
		marks:	/ 4



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14	<p>Write and simplify an expression for the statement below.</p> <p style="text-align: center;"><i>the product of seven cubed and three times ten to the power six</i></p>	
	marks:	/ 4

15	<p>Rashid is multiplying $(7b^2)(7b^3)$. Correct his error and explain what his error was.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: 60%; text-align: center;"> $\begin{aligned}(7b^2)(7b^3) &= 7b^{2+3} \\ &= 7b^5\end{aligned}$ </div>	
	marks:	/ 3

MULTIPLE CHOICE SECTION:	/10
EXTENDED RESPONSE SECTION:	/15
TOTAL MARKS:	/25
PERCENT:	%

Grade	7	Lesson(s)	3-1, 3-2, 3-3, 3-4, 3-5, 3-6, 3-7
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Answer Key

MULTIPLE CHOICE QUESTIONS:

Q1	C
Q2	D
Q3	A
Q4	C
Q5	A
Q6	A
Q7	D
Q8	C
Q9	B
Q10	B

CONSTRUCTED RESPONSE QUESTIONS:

Q11	<ul style="list-style-type: none"> Ans: 1,500,000,000 AND 1.5×10^9 	
	1. Standard form 2. Scientific Notation	<ul style="list-style-type: none"> 1,500,000,000 1.5×10^9

Q12	Ans: $\left(\frac{2}{7}\right)^5$	
	1. multiplying monomials	<ul style="list-style-type: none"> $\left(\frac{2}{7}\right)^{1+1+1+1+1}$ $\left(\frac{2}{7}\right)^5$
	<ul style="list-style-type: none"> Award 2 marks even if the answer is given without any working. If the final answer is $\frac{2^5}{7^5}$, award 2 marks. 	



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Q13	<ul style="list-style-type: none"> Ans: 3×10^{-4} 3.03×10^{-4} 3.13×10^{-4} 0.00303 0.0313 	
	1. Standard Form 2. Standard Form 3. Standard Form 4. Order from least to greatest.	<ul style="list-style-type: none"> $3 \times 10^{-4} = 0.0003$ $3.03 \times 10^{-4} = 0.000303$ $3.13 \times 10^{-4} = 0.000313$ $3 \times 10^{-4}, 3.03 \times 10^{-4}, 3.13 \times 10^{-4}, 0.00303, 0.0313$
	<ul style="list-style-type: none"> The 1st, 2nd, and 3rd marks are awarded for correct standard form. If wrong, award zero marks. The 4th mark is awarded for ordering from least to greatest. If the wrong answer from the 1st, 2nd, and 3rd marks are used to correctly order the numbers, award the 4th mark. 	
Q14	Ans: 1,029,000,000 or 1.029×10^9	
	1. Write <i>seven cubed</i> using numbers. 2. Write <i>three times ten to the power of six</i> using numbers. 3. Write the complete expression. 4. answer	<ul style="list-style-type: none"> 7^3 3×10^6 $(7^3)(3 \times 10^6)$ or $7^3 \times 3 \times 10^6$ or $343 \times 3,000,000$ 1,029,000,000 or 1.029×10^9
	<ul style="list-style-type: none"> The 3rd mark may be awarded if the 1st and 2nd marks are not awarded. The 4th mark may not be awarded if both the 1st and 2nd marks have not been awarded. 	
Q15	<ul style="list-style-type: none"> Ans: $49b^5$... Rashid forgot to multiply 7 by 7, but he added the powers (2+3) correctly. 	
	• multiplying coefficients • multiplying algebraic factors • explanation (reference to coefficients being multiplied)	<ul style="list-style-type: none"> 49 $49b^5$ Rashid forgot to multiply 7 by 7, but he added the powers (2+3) correctly.
	<ul style="list-style-type: none"> 1st mark for multiplying coefficients 2nd mark for adding powers 3rd mark to justify by explaining that Rashid forgot to multiply the coefficients For an answer of $49b^5$ but no explanation, only award 2 marks. 	