Steady Steps Maths

FREE UNIT TEST · TOPIC 7

FREE SAMPLE · UNIT TEST A

Exponents & Order of Operations

Unit Test A · 40 marks · about 40 minutes

GRADE 6



Common Core 6.EE.A.1

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Name _____ Date _____

UNIT TEST A

Exponents & Order of Operations

40 marks · about 40 minutes · Common Core 6.EE.A.1

Name _____ **Date** _____

Instructions

- Answer **every** question in the space given.
- Show your working: in Sections B and C you get marks for your method, even if the final answer is wrong.
- The number in brackets, like [2], shows how many marks a question is worth.
- You have about 40 minutes. A calculator is **not** needed.
- Check your answers if you finish early.

Your score

Section	Questions	Marks	Your score
A · Quick questions	1–10	10	
B · Show your working	11–16	17	
C · Problem solving	17–18	13	
Total		**40**	

Percentage: _____ % 85%+ excellent · 65–84% good · 45–64% keep practising · below 45% revise the packs first

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SECTION A Quick questions

1 mark each · write your answer in the box

1. Write $7 \times 7 \times 7$ using an exponent. [1]

Answer

2. Find the value of 6^3. [1]

Answer

3. Find the value of 0.3^2. [1]

Answer

4. $\square^2 = 16$. What number goes in the box? [1]

Answer

5. Evaluate $9 + 6 \times 5$. [1]

Answer

6. Evaluate $40 - 6 \div 3$. [1]

Answer

7. Evaluate $(5 + 3) \times 6$. [1]

Answer

8. Evaluate $8 + 4^2$. [1]

Answer

9. Evaluate $48 \div 8 \times 2$. [1]

Answer

10. Write <, > or =: $2^3 \bigcirc 3^2$ [1]

Answer

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SECTION B Show your working

Marks are given for your method

11 Evaluate 23 − 4 × 4 + 4. Show each step. [2]

Answer

12 Evaluate 4 × [14 − (3 + 3)]. Show each step. [3]

Answer

13 Evaluate $3 \times 2^2 - 6$. Show each step. [3]

Answer

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14 Add one pair of brackets to make this true: 2 + 2 × 5 = 20 [2]

Answer

15 Write 144 as a product of prime factors using exponents. Then check by multiplying. [4]

Answer

16 Rami says $5^2 = 10$. Explain his mistake and find the right value. [3]

Answer

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SECTION C Problem solving

Longer questions with several steps

17 Ali buys 3 packs of 6 cookies and 6 single cookies. [7]

(a) Write one expression for the total number of cookies.

(b) Work it out.

(c) He shares them equally between 4 friends. Write one expression for how many each friend gets, using brackets, and work it out.

Answer

18 A square tile has sides of 7 cm. A cube has edges of 2 cm. [6]

(a) Write the tile's area as a power and find its value.

(b) Write the cube's volume as a power and find its value.

(c) Evaluate $7^2 - 2^3$.

Answer

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Mark scheme

For parents · give the marks shown; method marks can be given even if the final answer is wrong

Tip: Give method marks generously when the working shows the right idea. If a mistake early on is carried through correctly, give the later marks.

Q	Answer	Marks	How to award the marks
1	7^3	1	
2	216	1	
3	0.09	1	
4	4	1	
5	39	1	
6	38	1	
7	48	1	
8	24	1	
9	12	1	Left to right.
10	<	1	8 and 9.
11	11	2	1 mark for $4 \times 4 = 16$ first; 1 mark for the answer.
12	32	3	1 mark for $3 + 3 = 6$; 1 mark for $14 - 6 = 8$; 1 mark for the answer.
13	6	3	1 mark for $2^2 = 4$; 1 mark for $3 \times 4 = 12$; 1 mark for the answer.
14	$(2 + 2) \times 5$	2	1 mark for brackets in the right place; 1 mark for checking.
15	$2^4 \times 3^2$	4	1 mark for a correct method; 1 mark for all prime factors; 1 mark for exponent form; 1 mark for checking.
16	He multiplied 5×2. $5^2 = 5 \times 5 = 25$	3	1 mark for explaining the mistake; 1 mark for writing the repeated multiplication; 1 mark for the value.
17	(a) $3 \times 6 + 6$ (b) 24 (c) $(3 \times 6 + 6) \div 4 = 6$	7	(a) 2 marks. (b) 2 marks: 1 for multiplying first. (c) 3 marks: 1 for brackets, 1 for ÷, 1 for the answer.
18	(a) $7^2 = 49$ cm² (b) $2^3 = 8$ cm³ (c) 41	6	(a) 2 marks. (b) 2 marks. (c) 2 marks: 1 for working out both powers first.

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What to revise

Circle the questions your child lost marks on, then go back to the matching part of the pack

Questions	Skill	Revise in	✓ / ×
1, 15	Exponent form	Pack 1 · Powers & Exponents, Part 1	
2, 3, 16	Evaluate powers	Pack 1 · Powers & Exponents, Part 2	
4, 10	Missing numbers	Pack 1 · Powers & Exponents, Part 3	
5, 6, 9, 11	× before +	Pack 2 · Order of Operations, Part 1	
7, 12, 17	Brackets first	Pack 2 · Order of Operations, Part 2	
8, 13	Exponents in expressions	Pack 2 · Order of Operations, Part 3	
14	Put in the brackets	Pack 2 · Order of Operations, Part 4	
18	Squares and cubes	Pack 1 · Powers & Exponents, Part 2 and Pack 2 · Order of Operations, Part 3	

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