

Grade 6 · Exponents and Order of Operations · Test Answer Key

Common Core 6.EE.A.1, 6.EE.A.2c · mathovore.fr

This answer key for the exponents and order of operations test shows a full solution and a point-by-point scoring guide for each of the 9 questions. Award partial credit as described, and total the score out of 20 points.

Grade 6 Common Core: 6.EE.A.1 · 6.EE.A.2c

Question 1: Evaluating Powers (2 points)

- a. $4^3 = 4 \times 4 \times 4 = 16 \times 4 = 64$
- b. 10^5 is a 1 followed by five zeros: **100,000**

Scoring: 1 point for each correct part. Give 0 for part (a) if the answer is 12 (multiplying 4 by 3).

Question 2: Using an Exponent (2 points)

Four factors of 6: 6^4 . Then $6^2 = 36$, $6^3 = 216$, $6^4 = 216 \times 6 = 1,296$

Scoring: 1 point for 6^4 ; 1 point for 1,296.

Question 3: Addition, Subtraction, Multiplication, Division (2 points)

- a. Multiply first: $4 \times 5 = 20$. Then $28 - 20 + 6 = 8 + 6 = 14$
- b. Left to right: $48 \div 8 = 6$, then $6 \times 3 = 18$

Scoring: 1 point for each correct part. Answers of 34 for (a) or 2 for (b) earn 0 points.

Question 4: Grouping Symbols (2 points)

- a. Parentheses: $15 - 7 = 8$. Left to right: $8 \times 4 = 32$, then $32 \div 2 = 16$
- b. Parentheses: $4 + 6 = 10$. Divide: $60 \div 10 = 6$. Subtract: $6 - 2 = 4$

Scoring: 1 point for each correct part.

Question 5: Effect of Parentheses (2 points)

- a. Exponent: $3^2 = 9$. Multiply: $9 \times 2 = 18$. Add: $7 + 18 = 25$

b. Parentheses: $7+3=10$. Exponent: $10^2=100$. Multiply: $100 \times 2 = 200$

Scoring: 1 point for each correct part.

Question 6: Multi-Step Expressions (3 points)

a. Inside parentheses, exponent first: $2^3=8$, so $8+4=12$. Then $5 \times 12=60$ and $60-9=51$

b. Parentheses: $13-4=9$. Divide: $90 \div 9=10$. Exponent: $3^2=9$. Add: $10+9=19$

c. Exponents: $2^4=16$ and $2^2=4$. Multiply: $3 \times 4=12$. Subtract: $16-12=4$

Scoring: 1 point for each correct part.

Question 7: Comparing Powers (2 points)

a. $2^6=64$ and $6^2=36$, so $2^6 > 6^2$

b. $4^3=64$ and $2^6=64$, so $4^3 = 2^6$

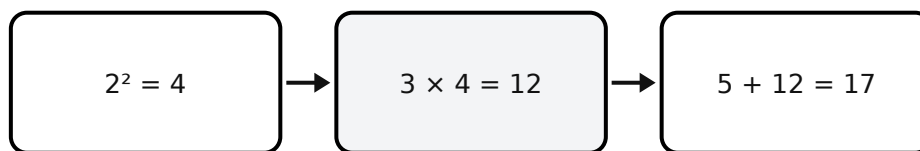
Scoring: 1 point for each correct symbol, supported by the values.

Question 8: Noah's Mistake (2 points)

a. Exponent: $2^2=4$. Multiply: $3 \times 4=12$. Add: $5+12=17$

b. Noah added $5+3=8$ first and then multiplied by $2^2=4$, getting $8 \times 4=32$. He should have multiplied before adding.

Scoring: 1 point for the correct value; 1 point for explaining that he added before multiplying.



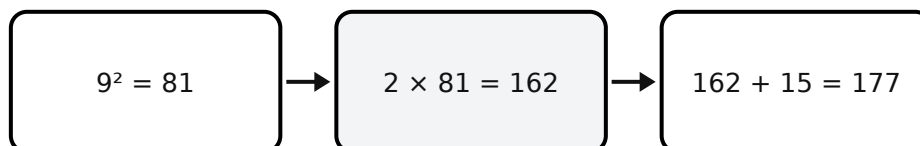
Correct order of operations.

Question 9: Garden Soil (3 points)

a. Area: $9^2=81$ square feet. Answer: $9^2=81 \text{ ft}^2$

b. Cost: $2 \times 9^2 + 15 = 2 \times 81 + 15 = 162 + 15 = \$177$

Scoring: Part (a): 1 point. Part (b): 1 point for a correct expression and 1 point for the correct total.



Cost of soil with delivery.

Total
20 points