Perimeter, area and volume of similar figures worksheet – Grade 9

Grade 9 · Mixed level · 20 questions · **Version X2803**

Name: _____ Date: _____ Score: ___ / 20

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1. Every length of a solid is doubled. What happens to the volume?
   A. × 8 **B.** × 2 **C.** × 4 **D.** × 6

2. A photo is enlarged 3 times. Its perimeter was 17 cm. What is the new perimeter, in cm?
   Answer: _____ cm

3. A photo is enlarged 3 times. It had an area of 5 cm². What is the new area, in cm²?
   Answer: _____ cm²

4. A model is enlarged 5 times. It held 23 L. How many litres does the larger one hold?
   Answer: _____ L

5. A photo is enlarged 4 times. Its perimeter was 16 cm. What is the new perimeter, in cm?
   Answer: _____ cm

6. A model is enlarged 5 times. It held 18 L. How many litres does the larger one hold?
   Answer: _____ L

7. A photo is enlarged 3 times. It had an area of 19 cm². What is the new area, in cm²?
   Answer: _____ cm²

8. Two similar statues have heights in the ratio 2 : 5. What is the ratio of the paint needed?
   A. 8 : 125 **B.** 2 : 5 **C.** 4 : 25

9. Two similar pizzas have diameters in the ratio 2 : 3. The small one has 24 g of cheese spread evenly. How many grams does the large one need?
   Answer: _____ g

10. Two similar jars have heights in the ratio 2 : 5. The small jar holds 24 mL. How much does the large jar hold, in mL?
    Answer: _____

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11. Two similar jars have heights in the ratio 1 : 2. The small jar holds 3 mL. How much does the large jar hold, in mL?

    Answer: _____

12. Two similar statues have heights in the ratio 3 : 4. What is the ratio of their masses?

    A. 9 : 16 **B.** 3 : 4 **C.** 27 : 64

13. Two similar pizzas have diameters in the ratio 3 : 5. The small one has 27 g of cheese spread evenly. How many grams does the large one need?

    Answer: _____ g

14. Two similar statues have heights in the ratio 1 : 2. What is the ratio of their masses?

    A. 1 : 8 **B.** 1 : 2 **C.** 1 : 4

15. A pizza has twice the diameter of another and costs 3 times as much. Which is better value?

    A. The larger pizza **B.** The smaller pizza **C.** They are equal

16. Why do small animals lose heat faster than large ones?

    A. They have more surface area for their volume **B.** They are always colder

    C. They have less fur **D.** Their volume is larger

17. A large pizza has twice the diameter of a small one and costs 5 times as much. How many times as much pizza do you get?

    Answer: _____

18. A small bottle uses 18 cm^2 of label, and a similar large one uses 32 cm^2. The small one holds 81 mL. What does the large one hold, in mL?

    Answer: _____

19. Two similar solids have volumes 108 and 256. What is the ratio of their surface areas?

    A. 3 : 4 **B.** 9 : 16 **C.** 27 : 64

20. A large pizza has twice the diameter of a small one and costs 6 times as much. How many times as much pizza do you get?

    Answer: _____

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Answer key · Version X2803

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1. **A (× 8)**
2. **51**
3. **45**
4. **2875**
5. **64**
6. **2250**
7. **171**
8. **C (4 : 25)**
9. **54**
10. **375**
11. **24**
12. **C (27 : 64)**
13. **75**
14. **A (1 : 8)**
15. **A (The larger pizza)**
16. **A (They have more surface area for their volume)**
17. **4**
18. **192**
19. **B (9 : 16)**
20. **4**

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