



# Area, Surface & Volume

Name: \_\_\_\_\_

Grade: 7 \_\_\_\_\_

Date: \_\_\_\_\_

*Find area of composite figures, surface area, and volume of cylinders/prisms. Apply in real contexts and analyze errors.*

## Part 1 · Area of Composite Figures AREA

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1. Rectangle  $12 \times 7 =$  \_\_\_\_\_

2. Triangle base 10, height 8 = \_\_\_\_\_

3. Parallelogram base 9, height 6 = \_\_\_\_\_

4. Trapezoid bases 8, 14, height 5 = \_\_\_\_\_

5. Composite: square  $6 \times 6$  + triangle base 6, height 4 = \_\_\_\_\_

6. Circle radius 5, area = \_\_\_\_\_

## Part 2 · Surface Area SURFACE

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7. Cube edge 6: surface area = \_\_\_\_\_

8. Rectangular prism  $8 \times 5 \times 3$ : surface area = \_\_\_\_\_

9. Cylinder  $r=4$ ,  $h=10$ : surface area = \_\_\_\_\_

10. Prism  $12 \times 7 \times 3$ : surface area = \_\_\_\_\_

11. Cylinder  $r=2$ ,  $h=8$ : surface area = \_\_\_\_\_

12. Cube edge 9: surface area = \_\_\_\_\_

### Part 3 · Volume VOLUME

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13. Cube edge 5 = \_\_\_\_\_

14. Prism  $10 \times 5 \times 4$  = \_\_\_\_\_

15. Cylinder  $r=3$ ,  $h=7$  = \_\_\_\_\_

16. Prism  $12 \times 7 \times 3$  = \_\_\_\_\_

17. Cylinder  $r=2$ ,  $h=8$  = \_\_\_\_\_

18. Prism  $8 \times 5 \times 3$  = \_\_\_\_\_

### Part 4 · Mixed Contexts CONTEXT

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19. A garden bed  $14 \times 6$  ft. Area = \_\_\_\_\_

20. A box  $12 \times 8 \times 5$  in. Volume = \_\_\_\_\_

21. A cylinder  $r=4$ ,  $h=10$ . Surface area = \_\_\_\_\_ ; volume = \_\_\_\_\_

22. A pool  $20 \times 8 \times 5$  yd. Volume = \_\_\_\_\_

23. A prism  $8 \times 5 \times 3$ . Surface area = \_\_\_\_\_ ; volume = \_\_\_\_\_

24. Reflection: Most helpful strategy? \_\_\_\_\_

## Part 5 · Error Analysis ERROR

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25. Error: Area of triangle  $10 \times 8 = 80$ . Correct & mistake?

26. Error: Surface area cube edge 4 = 16. Correct & why?

27. Error: Volume prism  $10 \times 5 \times 4 = 90$ . Correct & why?

## Part 6 · Challenge & Reflection CHALLENGE

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28. Prism  $14 \times 7 \times 3$ . Surface area = \_\_\_\_\_ ; volume = \_\_\_\_\_

29. Cylinder  $r=6$ ,  $h=8$ . Surface area = \_\_\_\_\_ ; volume = \_\_\_\_\_

30. Trapezoid bases 12, 18, height 7. Area = \_\_\_\_\_



31. Reflection: Most helpful strategy? \_\_\_\_\_

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## Answer Key

1. 84
2. 40
3. 54
4. 55
5.  $36 + 12 = 48$
6.  $25\pi$
7. 216
8. 158
9.  $352\pi$
10. 262
11.  $160\pi$
12. 486
13. 125
14. 200
15.  $63\pi$
16. 252
17.  $32\pi$
18. 120
19. 84
20. 480
21.  $352\pi$  ;  $160\pi$
22. 800
23. 158 ; 120
24. Varies
25. 40 / forgot divide by 2
26.  $96 / 6 \text{ faces} \times 16$
27. 200 / multiplied not added
28. 350 ; 294
29.  $528\pi$  ;  $288\pi$
30. 105
31. Varies

Accept equivalent forms. Reflection varies.