

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

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

Teacher: \_\_\_\_\_

Parent Sign: \_\_\_\_\_

1. Find the volume of a rectangular prism with length  $\frac{1}{2}$ , width  $\frac{3}{4}$ , height 2.
2. Find the volume with length  $2\frac{1}{3}$ , width  $\frac{1}{2}$ , height 3.
3. Find the volume with length  $\frac{5}{6}$ , width  $\frac{4}{5}$ , height  $\frac{3}{2}$ .
4. Find the volume with length  $1\frac{3}{4}$ , width  $\frac{2}{3}$ , height  $\frac{1}{2}$ .
5. Find the volume with length  $\frac{3}{5}$ , width  $\frac{7}{8}$ , height  $2\frac{1}{4}$ .
6. Find the volume with length  $4\frac{1}{2}$ , width  $\frac{2}{5}$ , height  $\frac{3}{4}$ .
7. Find the volume with length  $\frac{7}{10}$ , width  $1\frac{1}{3}$ , height  $\frac{5}{6}$ .
8. Find the volume with length  $2\frac{2}{5}$ , width  $\frac{3}{7}$ , height  $1\frac{1}{2}$ .
9. Find the volume with length  $\frac{9}{4}$ , width  $\frac{2}{3}$ , height  $\frac{3}{5}$ .
10. Find the volume with length  $\frac{1}{3}$ , width  $\frac{1}{4}$ , height  $\frac{1}{5}$ .
11. Find the volume with length  $2\frac{3}{4}$ , width  $\frac{3}{8}$ , height 4.
12. Find the volume with length  $\frac{5}{2}$ , width  $\frac{3}{4}$ , height  $\frac{7}{10}$ .
13. Find the volume with length  $3\frac{1}{5}$ , width  $2\frac{2}{3}$ , height  $\frac{1}{2}$ .
14. Find the volume with length  $\frac{6}{7}$ , width  $\frac{7}{9}$ , height  $\frac{3}{4}$ .
15. Find the volume with length  $2\frac{1}{8}$ , width  $\frac{1}{3}$ , height  $\frac{3}{5}$ .
16. Find the volume with length  $\frac{4}{3}$ , width  $\frac{9}{10}$ , height  $\frac{5}{6}$ .
17. Find the volume with length  $\frac{7}{2}$ , width  $\frac{3}{5}$ , height  $\frac{1}{3}$ .
18. Find the volume with length  $1\frac{2}{3}$ , width  $2\frac{1}{4}$ , height  $\frac{3}{5}$ .
19. Find the volume with length  $\frac{3}{2}$ , width  $2\frac{2}{5}$ , height  $\frac{4}{7}$ .
20. Find the volume with length  $\frac{5}{9}$ , width  $\frac{3}{8}$ , height  $2\frac{1}{3}$ .

How volume changes (scale factor / change problems)

21. A box has dimensions  $2 \times \frac{3}{4} \times \frac{5}{6}$ . If the length is doubled, what is the new volume? By what factor did the volume change?
22. A box is  $\frac{1}{2} \times \frac{2}{3} \times \frac{3}{4}$ . If the height is cut in half, what is the new volume? How does it compare to the original?
23. A box is  $\frac{3}{4} \times \frac{4}{5} \times \frac{5}{6}$ . If the width is increased by  $\frac{1}{5}$  of its value (i.e., new width =  $\frac{6}{5}$  x original), what is the new volume? By what factor did volume change?
24. A box has dimensions  $1\frac{1}{2} \times 2\frac{1}{3} \times \frac{3}{4}$ . If every dimension is multiplied by  $\frac{1}{2}$ , how does the volume change? What is the new volume (you may give factor and numeric answer)?
25. A box is  $\frac{2}{3} \times \frac{3}{4} \times \frac{4}{5}$ . If the length is tripled, what is the new volume?
26. A box is  $1\frac{1}{4} \times \frac{2}{3} \times \frac{3}{2}$ . The height is doubled and the width is halved. What is the new volume? How does it compare to the original?
27. A container has dimensions  $\frac{3}{5}, \frac{4}{7}, \frac{5}{9}$ . If each dimension is multiplied by  $\frac{3}{2}$ , by what factor does the volume change?
28. A rectangular prism has volume  $2\frac{1}{2}$ . Its length is  $\frac{5}{4}$  and width is  $\frac{1}{2}$ . Find its height.

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29. A prism has dimensions  $\frac{7}{8} \times \frac{1}{3} \times \frac{5}{6}$ . If the width is doubled and the height is reduced by  $\frac{1}{5}$  (i.e., multiplied by  $\frac{4}{5}$ ), what is the new volume? By what factor did the volume change?
30. A prism has dimensions  $\frac{2}{3} \times \frac{3}{4} \times \frac{4}{5}$ . If each dimension is multiplied by  $\frac{5}{4}$ , what is the new volume?
31. A box is  $1 \frac{1}{3} \times \frac{3}{5} \times \frac{5}{6}$ . If length increases by 50
32. A box is  $4 \frac{1}{2} \times \frac{2}{3} \times \frac{3}{10}$ . If the height is multiplied by  $\frac{10}{3}$ , by what factor does volume change? What is the new volume?
33. If a prism's length and width are each doubled (height unchanged), by what factor does the volume change?
34. If a prism's dimensions are multiplied by  $\frac{1}{2}$ ,  $\frac{2}{3}$ , and  $\frac{3}{4}$  respectively, by what factor does its volume change?
35. A prism has volume  $1 \frac{1}{2}$ , width  $\frac{3}{4}$ , height  $\frac{2}{5}$ . If the width is tripled, what is the new volume?

Word problems (real-world contexts)

36. A small fish tank measures  $1 \frac{1}{2}$  ft by  $\frac{2}{3}$  ft by  $\frac{3}{4}$  ft. What is its volume in cubic feet?
37. A storage box is  $2 \frac{1}{4}$  m long,  $1 \frac{1}{2}$  m wide,  $\frac{3}{5}$  m tall. How many cubic meters does it hold?
38. A garden bed is  $\frac{4}{5}$  m by  $\frac{3}{4}$  m by  $2 \frac{1}{2}$  m deep. How many cubic meters of soil are needed to fill it?
39. A shoebox measures  $\frac{11}{2}$  in by  $\frac{7}{3}$  in by  $\frac{4}{5}$  in. What is its volume in cubic inches?
40. A small aquarium is  $\frac{3}{4}$  ft long,  $\frac{5}{6}$  ft wide,  $\frac{7}{8}$  ft tall. If filled to the brim, how many cubic feet of water are needed?
41. A cereal box is  $1 \frac{1}{4}$  ft by  $\frac{3}{5}$  ft by  $\frac{4}{7}$  ft. What is its volume?
42. A drawer measures  $2 \frac{2}{3}$  ft by  $\frac{3}{4}$  ft by  $1 \frac{1}{5}$  ft. What is the drawer's volume in cubic feet?
43. A wooden block is  $\frac{7}{10}$  m by  $\frac{2}{3}$  m by  $\frac{9}{4}$  m. What is its volume in cubic meters?
44. A recipe uses a container  $1 \frac{1}{3}$  L by  $\frac{1}{2}$  L by  $\frac{3}{5}$  L. What is the container's volume in liters?
45. A shipping crate measures  $2 \frac{1}{2}$  m by  $1 \frac{2}{5}$  m by  $\frac{3}{8}$  m. What is its volume?
46. A planter box is  $2 \frac{3}{4}$  ft by  $1 \frac{1}{8}$  ft by  $\frac{5}{6}$  ft. How many cubic feet of soil does it hold?
47. A small tank is  $\frac{3}{5}$  m by  $\frac{3}{4}$  m by  $\frac{4}{9}$  m. If it is filled to half its height, how much water (in cubic meters) is in the tank?
48. A rectangular prism has volume  $\frac{15}{8}$  cubic meters and base area (length x width)  $\frac{5}{4}$  square meters. Find the prism's height.
49. A box has length  $4 \frac{1}{3}$  ft and width  $\frac{7}{8}$  ft. If its volume is  $\frac{14}{3}$  cubic feet, find the height.
50. A gift box is  $1 \frac{1}{2}$  ft by  $\frac{2}{3}$  ft by  $\frac{1}{4}$  ft. Small cubes of side  $\frac{1}{6}$  ft are used to fill it. How many small cubes fit exactly?