

Written Exercises

Rectangle $PQRS$ has length 12 in. and width 8 in. Describe the effect on the perimeter and the area of the rectangle when the dimensions are changed as described.

1. The length is multiplied by 4.
2. The width is divided by 4.
3. Both the length and the width are multiplied by 2.5.
4. The width is multiplied by x .

Triangle ABC has a base of length of 16 cm and a height of length 10 cm.

5. What effect will multiplying the base by 5 have on the area of $\triangle ABC$?
6. What effect will dividing the height by 2 have on the area of $\triangle ABC$?
7. What effect will multiplying the base by 5 and dividing the height by 2 have on the area of $\triangle ABC$?

Trapezoid $DEFG$ has bases of lengths 8 and 20 and a height of 6.

8. If the height is doubled, will the area of the trapezoid double? Explain.
9. If the length of one of the bases is doubled, will the area of the trapezoid double? Explain.
10. If the lengths of both bases are doubled, will the area of the trapezoid double? Explain.

Classify each statement as *true* or *false*. Justify your answer.

11. If the perimeter of a rectangle is doubled, then the area of the rectangle is also doubled.
12. If the area of a rectangle is doubled, then the perimeter of the rectangle is also doubled.
13. If the length of each side of a rhombus is divided by 3, then its perimeter is divided by 3 also.
14. If the radius of a sphere is multiplied by 4, then its volume is multiplied by 16.

A rectangular prism has length 10 m, width 4 m, and height 6 m.

15. Find the surface area and volume of the prism.
16. Describe how you can change one dimension of the prism so the surface area of the new rectangular prism is double the surface area of the original prism.
17. Describe how you can change one dimension of the prism so the volume of the new rectangular prism is double the volume of the original prism.
18. Each side of a square is x units long. The length of each side is multiplied by c . Describe the effect on the perimeter and the area of the square.
19. Each edge of a cube is x units long. Each edge is multiplied by c . Describe the effect on the surface area and the volume of the cube.