

16. The area of the 3×5 face is used 4 times rather than just twice.

$$\begin{aligned} S &= 2(3)(5) + 2(3)(4) + 2(5)(4) \\ &= 30 + 24 + 40 \\ &= 94 \text{ in.}^2 \end{aligned}$$

17. 177 in.^2

18. 726 cm^2

19. yes; Because you do not need to frost the bottom of the cake, you only need 249 square inches of frosting.

20. 156 in.^2

22. To find dimensions for a prism with a surface area of 158 square yards, choose two dimensions and solve for the third dimension.

Sample answer: Choose 8 yards for the length and 5 yards for the width. Solve for the height.

$$\begin{aligned} S &= 2\ell w + 2\ell h + 2wh \\ 158 &= 2(8)(5) + 2(8)h + 2(5)h \\ 158 &= 80 + 16h + 10h \\ 158 &= 80 + (16 + 10)h \\ 158 &= 80 + 26h \\ \underline{-80} \quad \underline{-80} \quad & \\ 78 &= 26h \\ \frac{78}{26} &= \frac{26h}{26} \\ 3 &= h \end{aligned}$$

So, a height of 3 yards gives a surface area of 158 square yards when the length is 8 yards and the width is 5 yards.

