

Solutions

2.1 A face scales in two directions: $3^2=9$.

2.2 A solid scales in three directions: $3^3=27$.

2.3 The area factor is $80/20=4$; its square root is 2.

3.1 False. A cube of side 1 has volume 1; side 2 gives volume 8. A length scale factor 2 gives volume scale factor $2^3=8$.

Local review guidance: show the chosen method; give the checked result; explain the condition or failed shortcut. This is authored classroom guidance.