**DIRECT VARIATION**

"y VARIES DIRECTLY AS x"
\[ \frac{y}{x} = k \]

**INVERSE VARIATION**

"y VARIES INVERSELY AS x"
\[ \frac{c}{d} = \pi \]

**JOINT VARIATION**

"y VARIES JOINTLY AS x AND z."
\[ \frac{y}{xz} = k \]

"y VARIES JOINTLY AS R AND S, AND INVERSELY AS T."
\[ \frac{yRT}{RS} = k \]
2.6 Constructing Functions with Variation

22. \[ \frac{h}{z} = k \]
\[ \frac{h}{z} = 1.05 \]

h = 210, \ z = 200

34. \[ \frac{J}{G V} = k \]
\[ \frac{\sqrt{3}}{\sqrt{2} \sqrt{8}} = \frac{1}{k} = \frac{\sqrt{3}}{4} \]

J \[ \frac{\sqrt{18}}{V} = \frac{\sqrt{3}}{4} \]
\[ J = \frac{\sqrt{18} \cdot 8}{V} = \frac{4 \sqrt{18} \cdot 8}{V} = \frac{4 \sqrt{18} \cdot 2}{V} = \frac{9 \cdot \sqrt{2} \cdot 2}{V} \]

\[ J = 6 \sqrt{2} \]