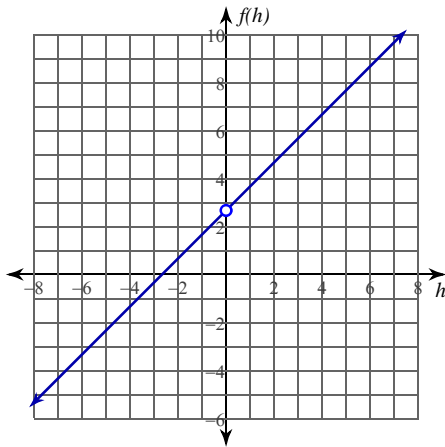


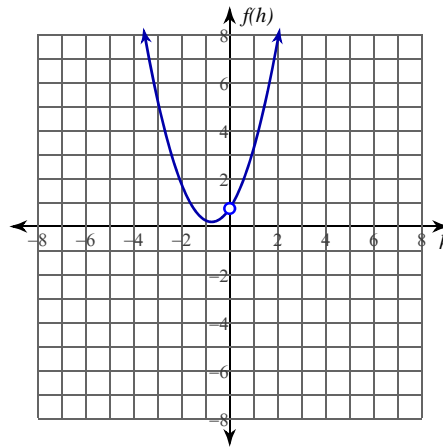
Limits in Form of Definition of Derivative

Evaluate each limit.

$$1) \lim_{h \rightarrow 0} \frac{\left(\frac{4}{3} + h\right)^2 - \left(\frac{4}{3}\right)^2}{h}$$



$$2) \lim_{h \rightarrow 0} \frac{\left(\frac{1}{2} + h\right)^3 - \left(\frac{1}{2}\right)^3}{h}$$



$$3) \lim_{h \rightarrow 0} \frac{\left(-\frac{1}{2} + h\right)^2 - \left(-\frac{1}{2}\right)^2}{h}$$

$$4) \lim_{h \rightarrow 0} \frac{2\left(-\frac{2}{3} + h\right)^4 - 2 \cdot \left(-\frac{2}{3}\right)^4}{h}$$

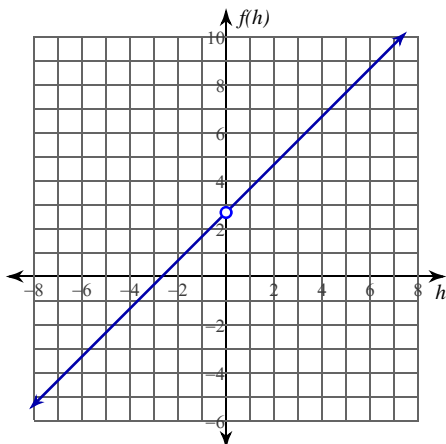
$$5) \lim_{h \rightarrow 0} \frac{\sin\left(\frac{\pi}{4} + h\right) - \sin\frac{\pi}{4}}{h}$$

$$6) \lim_{h \rightarrow 0} \frac{\left(-\frac{1}{3} + h\right)^4 - \frac{1}{81}}{h}$$

Limits in Form of Definition of Derivative

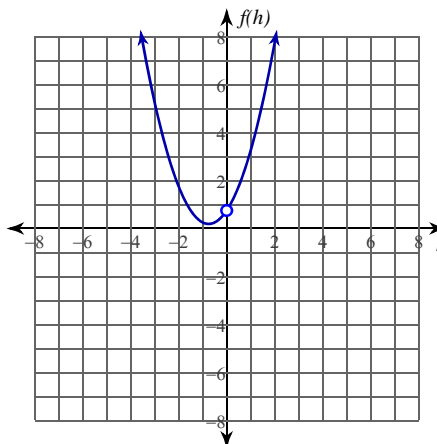
Evaluate each limit.

$$1) \lim_{h \rightarrow 0} \frac{\left(\frac{4}{3} + h\right)^2 - \left(\frac{4}{3}\right)^2}{h}$$



$$\frac{8}{3}$$

$$2) \lim_{h \rightarrow 0} \frac{\left(\frac{1}{2} + h\right)^3 - \left(\frac{1}{2}\right)^3}{h}$$



$$\frac{3}{4}$$

$$3) \lim_{h \rightarrow 0} \frac{\left(-\frac{1}{2} + h\right)^2 - \left(-\frac{1}{2}\right)^2}{h}$$

$$-1$$

$$4) \lim_{h \rightarrow 0} \frac{2\left(-\frac{2}{3} + h\right)^4 - 2 \cdot \left(-\frac{2}{3}\right)^4}{h}$$

$$-\frac{64}{27}$$

$$5) \lim_{h \rightarrow 0} \frac{\sin\left(\frac{\pi}{4} + h\right) - \sin\frac{\pi}{4}}{h}$$

$$\frac{\sqrt{2}}{2}$$

$$6) \lim_{h \rightarrow 0} \frac{\left(-\frac{1}{3} + h\right)^4 - \frac{1}{81}}{h}$$

$$-\frac{4}{27}$$