

Evaluate the following limits

$$1. \lim_{x \rightarrow \infty} \frac{5x^2 - 42}{3x^2 + 5}$$

$$2. \lim_{x \rightarrow 0} \frac{\sin(3x)}{2x}$$

$$3. \lim_{x \rightarrow \infty} \frac{e^{(x^2)}}{x^2 + 32x}$$

$$4. \lim_{x \rightarrow \infty} \frac{\sin(x) + 2}{e^x}$$

$$5. \lim_{x \rightarrow \infty} x e^{-x}$$

$$6. \lim_{x \rightarrow \infty} \left(1 + \frac{1}{x}\right)^x$$