

Solve the following.

$$(1) \lim_{x \rightarrow 12} \frac{9x^2}{12 + x}$$

$$(2) \lim_{x \rightarrow 0} \frac{4 - x^2}{5 - x^2}$$

$$(3) \lim_{x \rightarrow 5} \frac{25 - x^2}{x - 5}$$

$$(4) \lim_{x \rightarrow 9} \frac{90 + x + x^2}{9 + x^2 - 9x}$$

$$(5) \lim_{x \rightarrow 0} \frac{144 - x^2}{(x + 1)}$$

$$(6) \lim_{x \rightarrow 1} \frac{(x^2 - 1)}{(x - 1)}$$

$$(7) \lim_{x \rightarrow -4} \frac{x^2 + 4x + 4}{x + 2}$$

$$(8) \lim_{x \rightarrow 1} \frac{x^2 - 1}{1 - x}$$

$$(9) \lim_{x \rightarrow 0} \frac{x^2 + 1}{4x^2 - 4x + 1}$$

$$(10) \lim_{x \rightarrow \pi} \frac{\pi x^2}{x + \pi}$$

**Answer Key**

(1) 7 776

(2)  $\frac{4}{5}$

(3) - 10

(4) 20

(5) 144

(6) 2

(7) - 2

(8) - 2

(9) 1

(10)  $\frac{\pi^2}{2}$