

104. 極限

(1) 2	(2) -15	(3) -2	(4) -3	(5) 2	(6) $\frac{3}{5}$	(7) 3	(8) $-\frac{1}{3}$
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次の極限值を求めよ。

$$(1) \lim_{x \rightarrow 1} (3x - 1) = 3 \cdot 1 - 1 = 2$$

$$(2) \lim_{x \rightarrow -2} (x^2 + 1)(x - 1) = \{(-2)^2 + 1\}(-2 - 1) = -15$$

$$(3) \lim_{x \rightarrow 0} \frac{7x - 8}{3x + 4} = \frac{7 \cdot 0 - 8}{3 \cdot 0 + 4} = -2$$

$$(4) \lim_{x \rightarrow 0} \frac{2x^2 - 3x}{x} = \lim_{x \rightarrow 0} (2x - 3) = 2 \cdot 0 - 3 = -3$$

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

$$(6) \lim_{x \rightarrow 2} \frac{x^2 - x - 2}{x^2 + x - 6} = \lim_{x \rightarrow 2} \frac{(x + 1)(x - 2)}{(x + 3)(x - 2)} = \lim_{x \rightarrow 2} \frac{x + 1}{x + 3} = \frac{2 + 1}{2 + 3} = \frac{3}{5}$$

$$(7) \lim_{x \rightarrow 1} \frac{x^3 - 1}{x - 1} = \lim_{x \rightarrow 1} \frac{(x - 1)(x^2 + x + 1)}{x - 1} = \lim_{x \rightarrow 1} (x^2 + x + 1) = 1^2 + 1 + 1 = 3$$

$$(8) \lim_{x \rightarrow -3} \frac{1}{x + 3} \left(\frac{12}{x - 3} + 2 \right) = \lim_{x \rightarrow -3} \frac{1}{x + 3} \left(\frac{12 + 2(x - 3)}{x - 3} \right) = \lim_{x \rightarrow -3} \frac{1}{x + 3} \cdot \frac{2x + 6}{x - 3} = \lim_{x \rightarrow -3} \frac{1}{x + 3} \cdot \frac{2(x + 3)}{x - 3}$$

$$= \lim_{x \rightarrow -3} \frac{2}{x - 3} = \frac{2}{-3 - 3} = -\frac{1}{3}$$