



Calculus, Limits, Determinate

Name _____

Date _____

Find the following determinate limits

$$(1) \quad \lim_{k \rightarrow 5} \frac{-2k - 2}{4k - 3}$$

$$(2) \quad \lim_{w \rightarrow -1} \frac{\sqrt{5w^2 - 4w + 7} - 5}{-4w + 5}$$

$$(3) \quad \lim_{z \rightarrow 2} \frac{\sqrt{-2z + 29} - 9}{-4z^3 - 4z^2 - 2z}$$

$$(4) \quad \lim_{h \rightarrow -3} \frac{2h^4 + 2h^2 - 2h + 1}{5h^3 + 5h^2 - 2h}$$

$$(5) \quad \lim_{y \rightarrow -3} \frac{2y^3 + 2y^2 + y}{2y^3 - 4y^2 + y + 3}$$

$$(6) \quad \lim_{p \rightarrow 1} \frac{\sqrt{-p + 10} - 1}{-5p}$$

$$(7) \quad \lim_{u \rightarrow -5} \frac{\sqrt{-4u + 61} - 6}{-5u^3 - u^2 + u - 3}$$

$$(8) \quad \lim_{h \rightarrow 4} \frac{-5h^3 + 2h^2 - 4h - 1}{3h^3 + 3h - 1}$$

$$(9) \quad \lim_{a \rightarrow 1} \frac{2a^4 - 4a^3 + 3a^2 - 2a + 3}{-5a - 5}$$

$$(10) \quad \lim_{y \rightarrow -4} \frac{\sqrt{-2y + 17} - 9}{3y^3 + 2y^2 - 3y + 1}$$



Answers

Find the following determinate limits

$$(1) \quad \lim_{k \rightarrow 5} \frac{-2k - 2}{4k - 3}$$

$$= -\frac{12}{17}$$

$$(2) \quad \lim_{w \rightarrow -1} \frac{\sqrt{5w^2 - 4w + 7} - 5}{-4w + 5}$$

$$= -\frac{1}{9}$$

$$(3) \quad \lim_{z \rightarrow 2} \frac{\sqrt{-2z + 29} - 9}{-4z^3 - 4z^2 - 2z}$$

$$= \frac{1}{13}$$

$$(4) \quad \lim_{h \rightarrow -3} \frac{2h^4 + 2h^2 - 2h + 1}{5h^3 + 5h^2 - 2h}$$

$$= -\frac{187}{84}$$

$$(5) \quad \lim_{y \rightarrow -3} \frac{2y^3 + 2y^2 + y}{2y^3 - 4y^2 + y + 3}$$

$$= \frac{13}{30}$$

$$(6) \quad \lim_{p \rightarrow 1} \frac{\sqrt{-p + 10} - 1}{-5p}$$

$$= -\frac{2}{5}$$

$$(7) \quad \lim_{u \rightarrow -5} \frac{\sqrt{-4u + 61} - 6}{-5u^3 - u^2 + u - 3}$$

$$= \frac{3}{592}$$

$$(8) \quad \lim_{h \rightarrow 4} \frac{-5h^3 + 2h^2 - 4h - 1}{3h^3 + 3h - 1}$$

$$= -\frac{305}{203}$$

$$(9) \quad \lim_{a \rightarrow 1} \frac{2a^4 - 4a^3 + 3a^2 - 2a + 3}{-5a - 5}$$

$$= -\frac{1}{5}$$

$$(10) \quad \lim_{y \rightarrow -4} \frac{\sqrt{-2y + 17} - 9}{3y^3 + 2y^2 - 3y + 1}$$

$$= \frac{4}{147}$$