

WS08.02 Buneolas Neamhfhoimiúil ar Theorainneacha agus ar Leanúnachas Feidhmeanna

Gníomhaíocht Scoláirí: Coincheap na Teorann

Aidhm: Imscrúdú a dhéanamh ar threochtaí luachanna feidhmeanna éagsúla agus x ag druidim le x_0

Má: $f(x) = x + 3$, $g(x) = \frac{x^2 - 9}{x - 3}$ and $h(x) = \frac{1}{x - 3}$.

1. Comhlánaigh an tábla a leanas:

x	2.9	2.99	2.999	2.9999	3	3.0001	3.001	3.01	3.1
$f(x) = x + 3$									
$g(x) = \frac{x^2 - 9}{x - 3}$									
$h(x) = \frac{1}{x - 3}$									

2. Agus x ag druidim le 3 (ach $x \neq 3$), an bhfuil luach gach ceann de na feidhmeanna a leanas ag druidim le luach seasta?

Má tá, faigh an luach sin.

Muna bhfuil, an féidir leat cuntas a thabhairt ar a bhfuil ag tarlú, dar leat?

(i) $f(x) = x + 3$

(ii) $g(x) = \frac{x^2 - 9}{x - 3}$

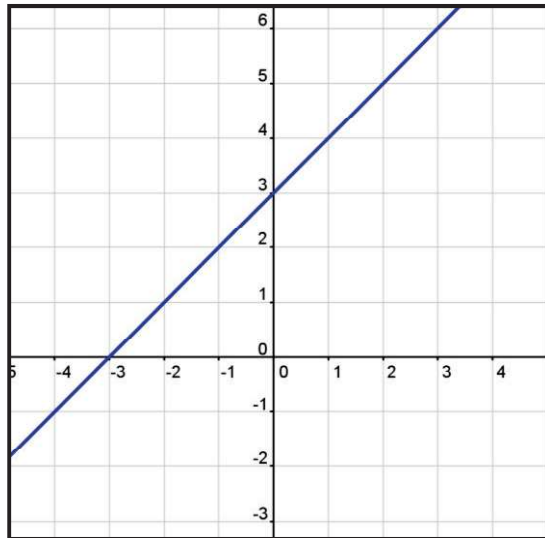
(iii) $h(x) = \frac{1}{x - 3}$

Tasc 1

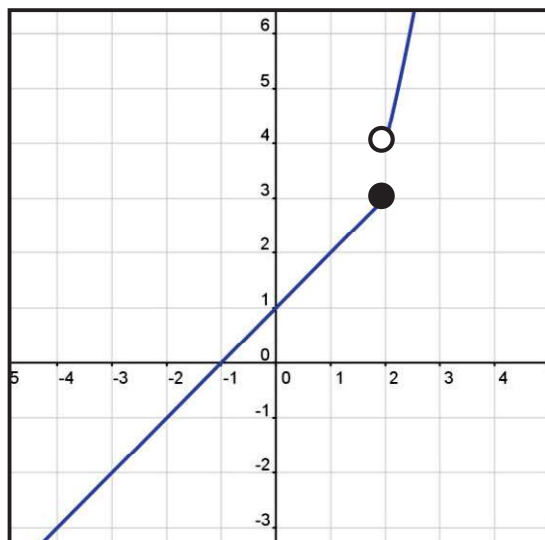
Déan anailís ar gach ceann de na grafanna thíos agus cinn an bhfuil an fheidhm a seasann gach ceann di leanúnach.

Muna bhfuil, luaigh an fáth go bhfuil an fheidhm neamhleanúnach.

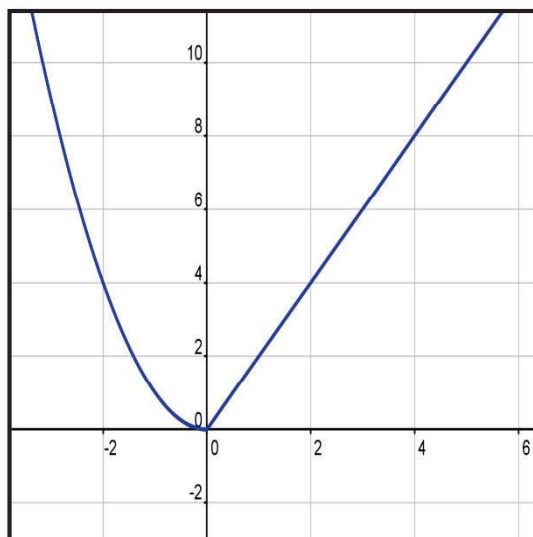
(i) $f: x \mapsto x+3$



(ii) $y = \begin{cases} x+1, & \text{if } x \leq 2 \\ x^2, & \text{if } x > 2 \end{cases}$



(iii) $g(x) = \begin{cases} x^2, & \text{if } x < 0 \\ 2x, & \text{if } x \geq 0 \end{cases}$



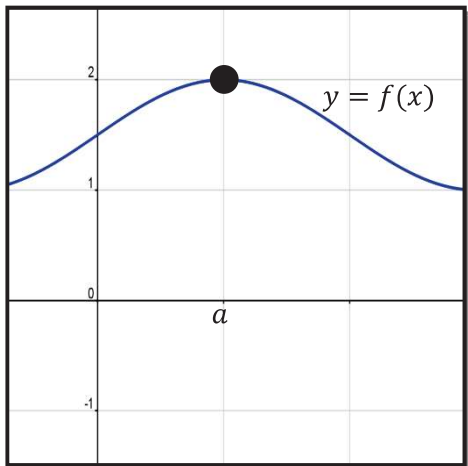
Tasc 2

De réir gach ceann de na grafanna feidhme $f(x)$ a leanas:

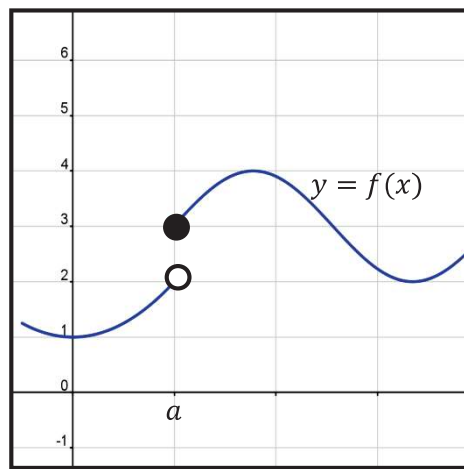
(i) Faigh $\lim_{x \rightarrow a} f(x)$.

(ii) Cinn an bhfuil $f(x)$ leanúnach ag $x = a$.

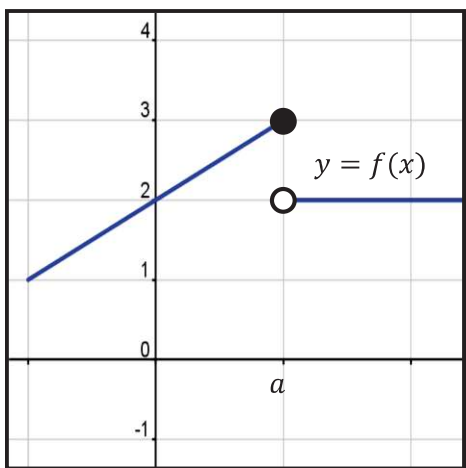
(a)



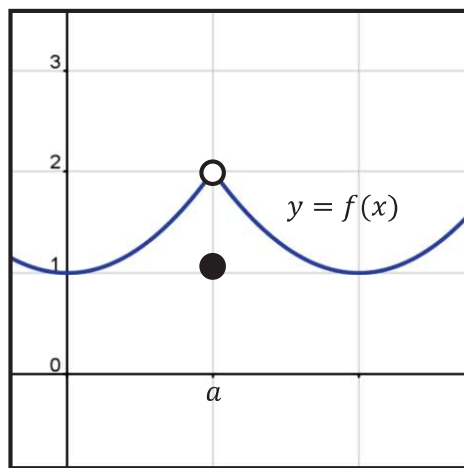
(b)



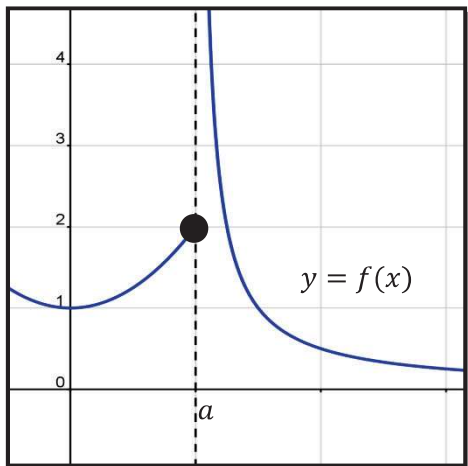
(c)



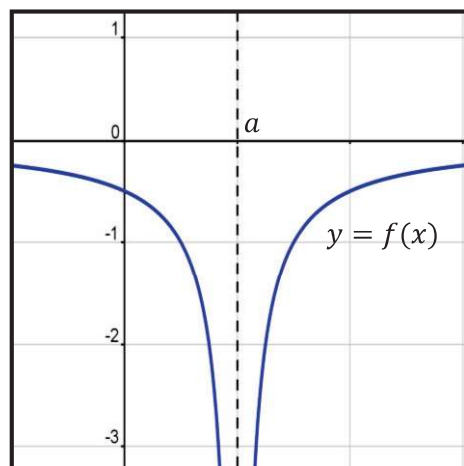
(d)



(e)



(f)



Réitigh ar **(a)** go **(f)** thuas:

- | | | | | |
|------------|------------|--------------------|-------------|--------------------|
| (a) | (i) | Tá leanúnach ag a | (ii) | Is é 2 an teorainn |
| (b) | (i) | Níl leanúnach ag a | (ii) | Níl teorainn ann |
| (c) | (i) | Níl leanúnach ag a | (ii) | Níl teorainn ann |
| (d) | (i) | Níl leanúnach ag a | (ii) | Is é 2 an teorainn |
| (e) | (i) | Níl leanúnach ag a | (ii) | Níl teorainn ann |
| (f) | (i) | Níl leanúnach ag a | (ii) | Níl teorainn ann |