

10) (a)  $mx, [m, x] \rightarrow y \rightarrow [0, 1]$  (b)  $z, x - z[x] = y \rightarrow [0, 1]$  (c)  $y, [x, z] = x \rightarrow (-1, 1)$

11) (a)  $\sqrt{a^2 + b^2} = \sqrt{u} \rightarrow R_f = [-\sqrt{u}, \sqrt{u}]$

(b)  $\sqrt{a^2 + b^2} = \sqrt{u} \rightarrow R_f = [-\omega, \omega]$  (c)  $\sqrt{a^2 + b^2} = \sqrt{u} \rightarrow R_f = [\pm \epsilon, \pm \omega, \pm \epsilon, \pm \omega, \pm \epsilon, \pm \omega]$

(d)  $\cos x - r \sin x \geq 0 \rightarrow \sqrt{1 - r^2} \geq \sin x \rightarrow R_f = [0, \sqrt{1 - r^2}]$

12) (a)  $\frac{\sin x}{\cos x} = \tan x \rightarrow R_f = [-\frac{\pi}{2}, \frac{\pi}{2}]$  (b)  $\frac{\sin x}{\cos x} = \tan x \rightarrow R_f = [-\frac{\pi}{2}, \frac{\pi}{2}]$

13) (a)  $y = 1 + r \cos^2 x \rightarrow R_f = [1, 2]$  (b)  $y = 1 + r \cos^2 x \rightarrow R_f = [1, 2]$

14) (a)  $y = 1 + r \cos^2 x \rightarrow R_f = [1, 2]$  (b)  $y = 1 + r \cos^2 x \rightarrow R_f = [1, 2]$

15) (a)  $y = 1 + r \cos^2 x \rightarrow R_f = [1, 2]$  (b)  $y = 1 + r \cos^2 x \rightarrow R_f = [1, 2]$

16) (a)  $y = 1 + r \cos^2 x \rightarrow R_f = [1, 2]$  (b)  $y = 1 + r \cos^2 x \rightarrow R_f = [1, 2]$

17) (a)  $y = 1 + r \cos^2 x \rightarrow R_f = [1, 2]$  (b)  $y = 1 + r \cos^2 x \rightarrow R_f = [1, 2]$

18) (a)  $y = 1 + r \cos^2 x \rightarrow R_f = [1, 2]$  (b)  $y = 1 + r \cos^2 x \rightarrow R_f = [1, 2]$

19

1. (a)  $x > r \rightarrow r x - \varepsilon > 0 \rightarrow y = x + (rx - \varepsilon) = rx - \varepsilon \rightarrow R = [r, +\infty)$   
 $x < r \rightarrow r x - \varepsilon < 0 \rightarrow y = x - (rx - \varepsilon) = \varepsilon - x \rightarrow R = (-\infty, r)$   
 $\Rightarrow R = [r, +\infty)$

(b)  $x > r \rightarrow y = (r - x) + (x - 1) - x = -1 - x \rightarrow R = (-1, +\infty)$

$1 < x < r \rightarrow y = (r - x) + (x - 1) - x = -1 - x \rightarrow R = (-1, +\infty)$

$0 < x < 1 \rightarrow y = (r - x) + (1 - x) - x = 1 - x \rightarrow R = [1, +\infty)$

$x < 0 \rightarrow y = (r - x) + (1 - x) + x = 1 - x \rightarrow R = (1, +\infty)$

$\Rightarrow R = [-1, +\infty)$

$r x - \varepsilon > 0 \rightarrow x > 1$

$x > 1 \rightarrow K = (rx - \varepsilon) - (x + r) = rx - \varepsilon - x - r = (r - 1)x - \varepsilon - r$

$0 < x < 1 \rightarrow K = (rx - \varepsilon) - (x + r) = rx - \varepsilon - x - r = (r - 1)x - \varepsilon - r$

$x < -1 \rightarrow K = (-rx + \varepsilon) - (-x - r) = -rx + \varepsilon + x + r = (-r + 1)x + \varepsilon + r$

$\Rightarrow (A) K \geq -\infty$

(B)  $-rx + \varepsilon$

(C)  $K \geq r$

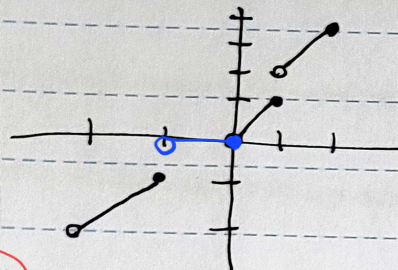
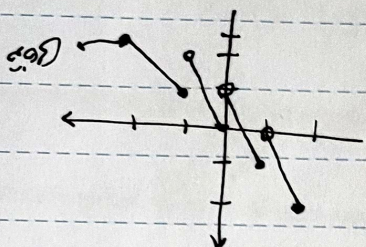
(5)

Gib etc.

(ii)  $x > 0 \rightarrow y = x + 1$   
 $x < 0 \rightarrow y = x - 1$

(i)  $x > 0 \rightarrow y = x + 1$   
 $x < 0 \rightarrow y = x - 1$

(5)



(10)

(a)  $-1 < x < 0 \rightarrow [x] = -1$   
 $0 < x < 1 \rightarrow [x] = 0$   
 $1 < x < 2 \rightarrow [x] = 1$   
 $\Rightarrow -1 < x < 0 \rightarrow [x] = -1$