

# FUNCTIONS & RELATIONS.

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## A. Basic Curve Sketching.

Sketch each of the following, clearly showing essential features where appropriate eg intercepts, asymptotes.

State the domain and range in each case.

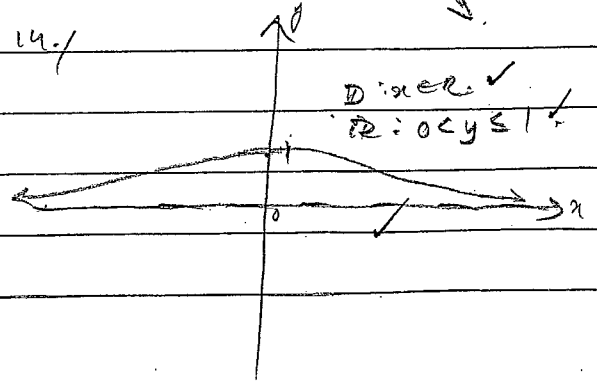
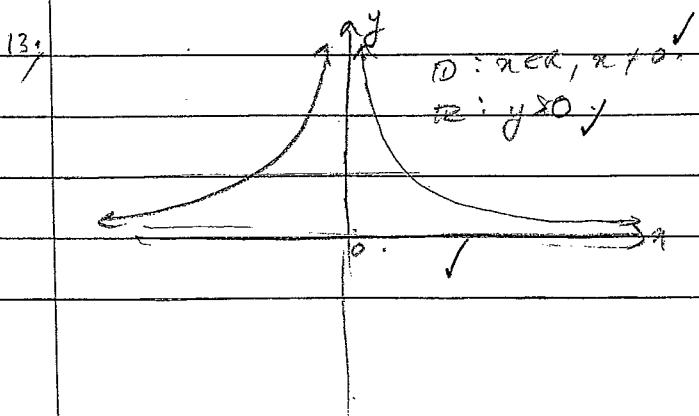
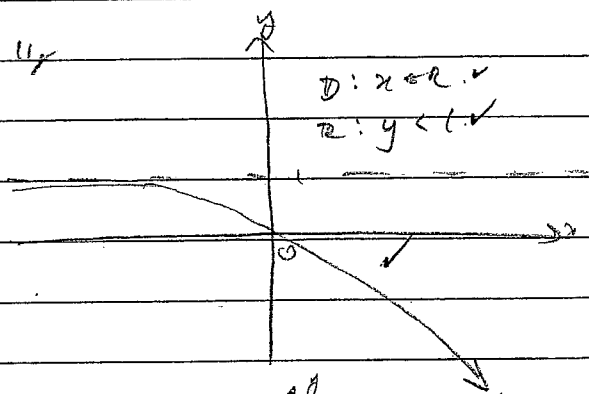
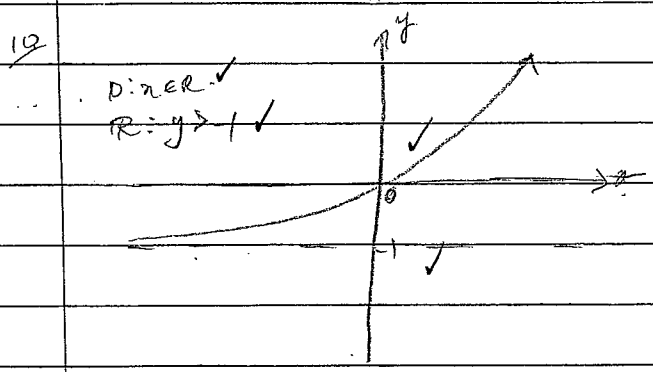
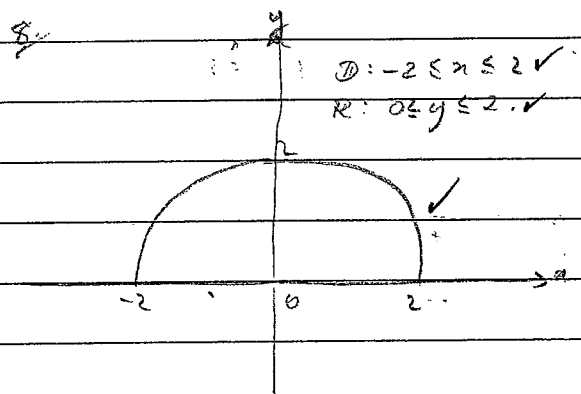
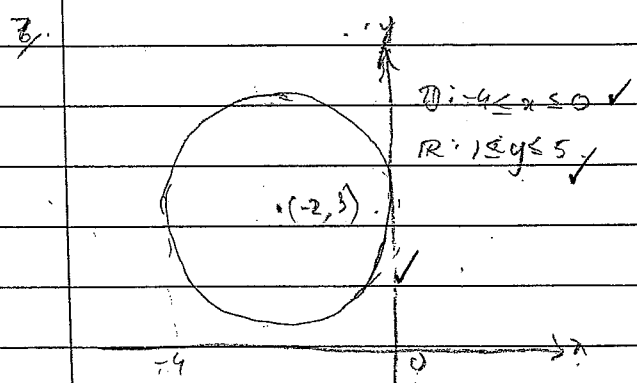
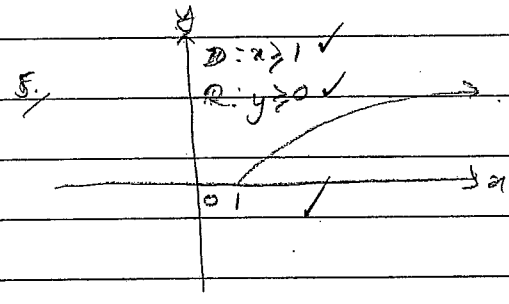
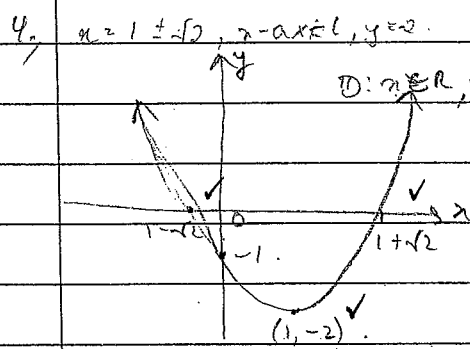
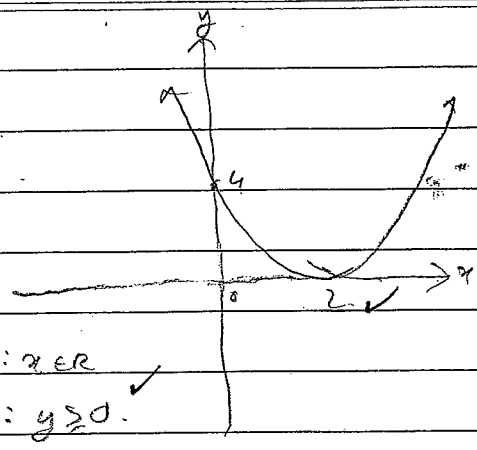
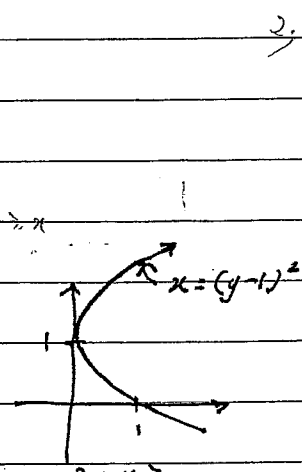
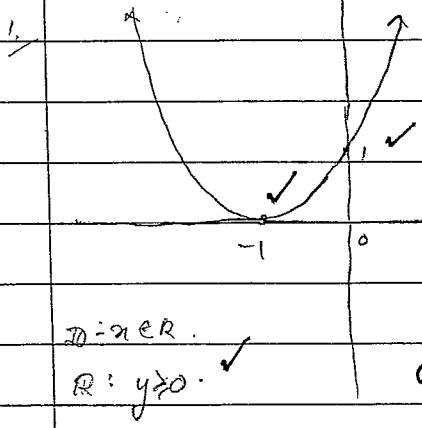
- 1.  $y = (x+1)^2$
- 2.  $y = (x-2)^2$
- 3.  $x = (y-1)^2$
- 4.  $y = x^2 - 2x - 1$
- 5.  $y = \sqrt{x-1}$
- 6.  $x^2 + (y-1)^2 = 1$
- 7.  $(x+2)^2 + (y-3)^2 = 4$
- 8.  $y = \sqrt{4-x^2}$
- 9.  $x = -\sqrt{9-y}$
- 10.  $y = 2^x - 1$
- 11.  $y = 1 - 3^x$
- 12.  $y = \log_2(x-1)$
- 13.  $y = \frac{1}{x^2}$   $x \neq 0$   
 $x \neq 0$
- 14.  $y = \frac{1}{x^2 + 1}$
- 15.  $y = |x-2|$
- 16.  $y = |x+3|$
- 17.  $y = 1 - |x|$
- 18.  $y = \frac{1}{x+2}$

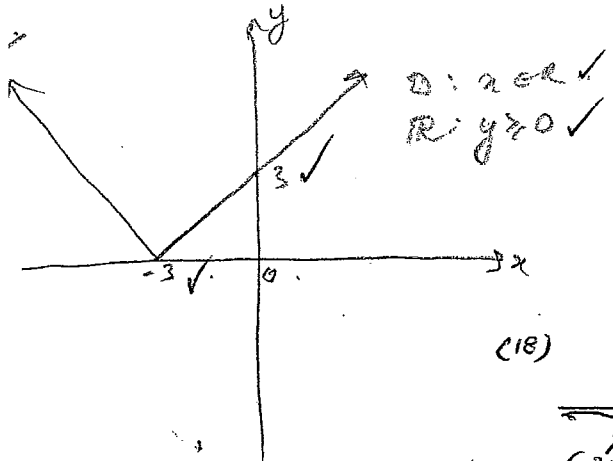
## B. More difficult curve sketching.

Sketch each of the following showing essential features. State the domain and range in each case marked \*

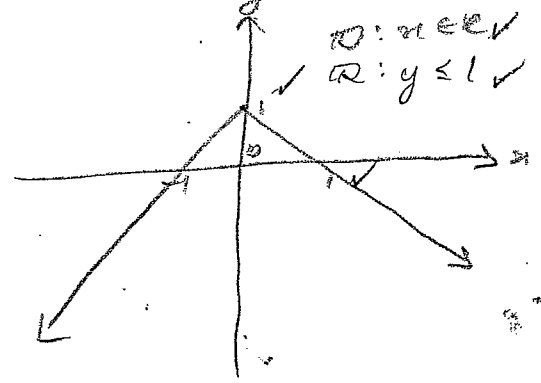
- 1.  $y = \frac{x-1}{x+1}$  \*
- 2.  $y = \frac{2x-1}{x-1}$  \*
- 3.  $y = \frac{x+1}{x}$
- 4.  $y = |x| + x$
- 5.  $y = \frac{x^2}{x^3+1} + \frac{1}{x}$
- 6.  $y = x^2 -$
- 7.  $|x| + |y| = 1$
- 8.  $|x| - |y| = 1 - 2$   
 $|y| \leq |x| - 1$
- 9.  $y = x + [x]$  where  $[x]$  means greatest integer less than or equal to  $x$
- 10.  $y = x + \sin x$  for  $0 \leq x \leq 2\pi$ .
- 11.  $y = x - [x]$
- 12.  $y = x - \sin x$
- 13.  $y = x \cdot \pi$
- 14.  $y = x \cdot 2$
- 15.  $x^2 + xy + y^2 =$  \*
- 16.  $0 \leq x \leq 2$

A) 1st page.





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(18)

