

# Radicals and Rationals

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**January 2014**

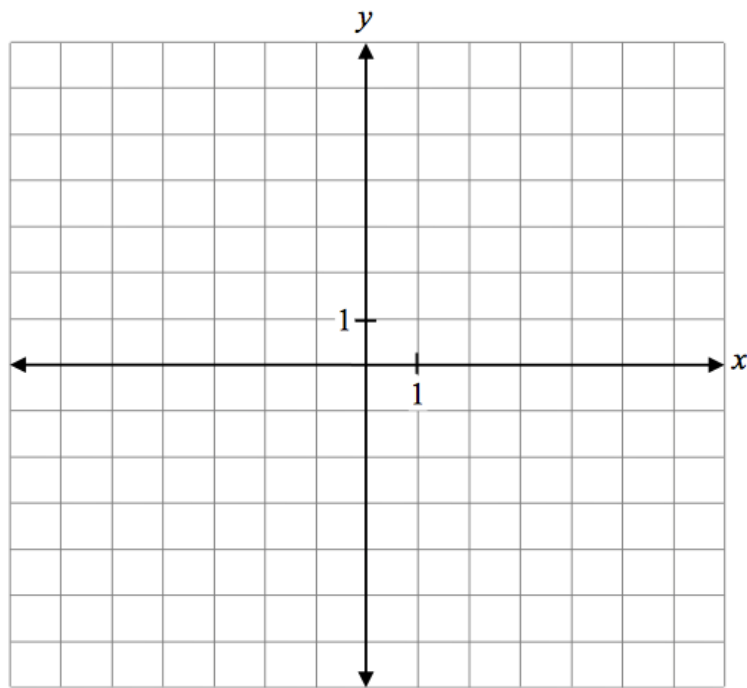
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Question 27

a) 3 marks   b) 1 mark

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a) Sketch the graph of the function  $y = \sqrt{-x} + 1$

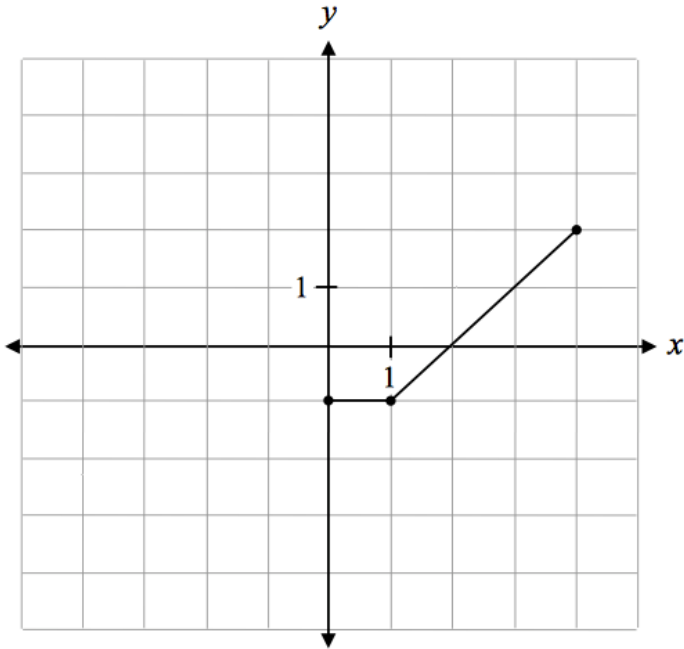


b) Determine the value of  $x$  when  $y = 3$ .

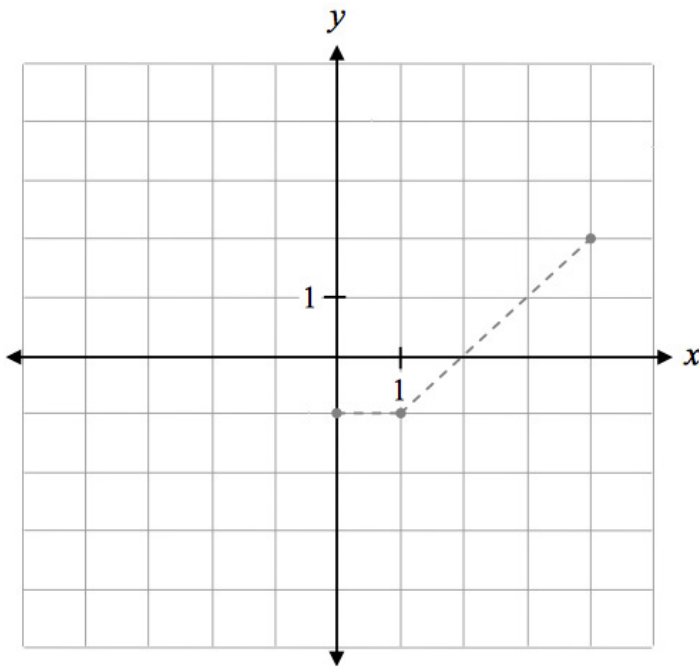
Question 34

2 marks

Given the graph of  $y = f(x)$  below,



Sketch the graph of  $y = \sqrt{f(x)}$ .



The graph of  $f(x)$  has already been drawn for your reference. No marks will be awarded for the graph of  $f(x)$ .

**Question 30****1 mark**

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Write the equation of the horizontal asymptote for the function  $f(x) = \frac{x-3}{x-2}$ .

**Question 36****2 marks**

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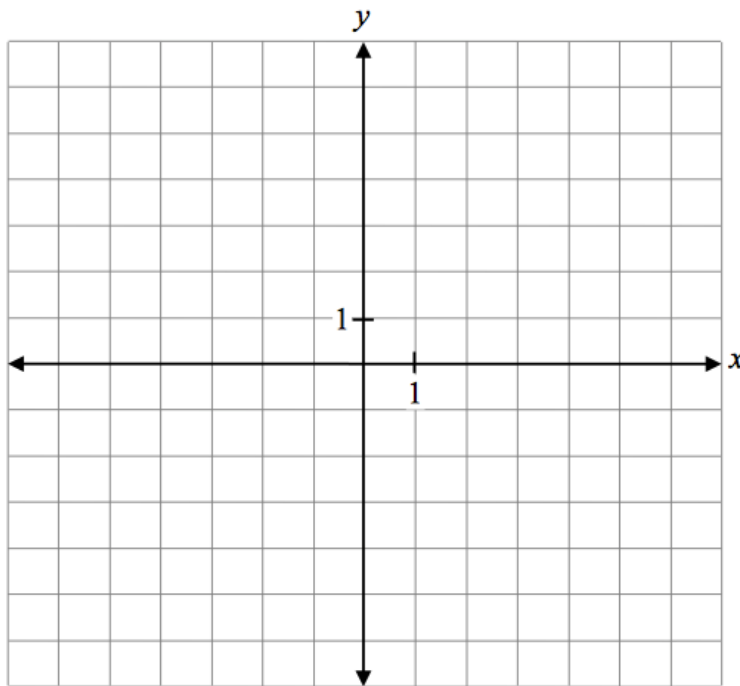
Identify the domain and range of the following function:

$$f(x) = \frac{3}{x^2+1}$$

**Question 44****4 marks**

Sketch the graph of the following function:

$$f(x) = \frac{x-2}{(2x-3)(x-2)}$$



**June 2013**

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**Question 34****2 marks**

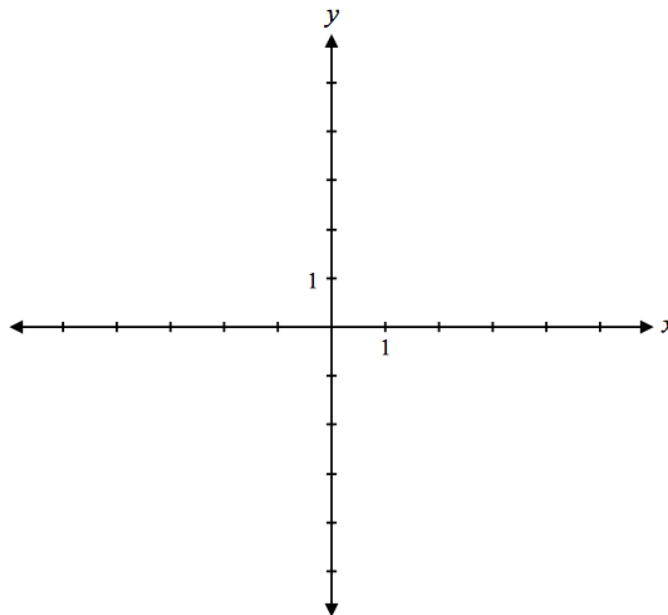
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The graph of a rational function,  $f(x)$ , has a point of discontinuity when  $x = 2$  and an asymptote when  $x = 4$ . Write a possible equation for  $f(x)$ .

**Question 37****3 marks**

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Sketch the graph of  $y = \sqrt{x+1} - 2$  and verify that the value of the  $x$ -intercept is the same as the solution to the equation  $\sqrt{x+1} - 2 = 0$ .



## Question 43

4 marks

Sketch the graph of the function  $f(x) = \frac{x^2}{x^2 - x}$ .

