Last Minute Revision Quiz

1. Where does the graph of $y = lnx$ intercept the x axis?

(1 point)

2. What does $arcsin$ mean?

(1 point)

3. Sketch the following graphs with appropriate axes:

   a) $sin^{-1}x$ *b)* $cos^{-1}x$ c) $tan^{-1}x$

(1 point each)

4. What are the double angle trig identities?

(1 point each)

5. $\int \frac{6x^2+6}{x^3+3x+2} dx =$

(2 points)

6. $\int \frac{3x^5+2}{\sqrt{x}} dx =$

(2 points)

7. Show that there is a solution to the equation $x^3 + 4x = 3$ between 0.5 and 1.0

(1 point)

8. a) What is a good first step in the process for solving equations such as $|x^2+3x+2| = 3$?

(1 point)

   b) For what values of k do the equations $y = |2-x^2|$ and $y = k$, have 0, 2, 3 and 4 roots?

(3 points)

9. a) Given the composite function gf, how is the range of f related to the function g?

(1 point)

b) In the same composite function gf, what is the range of g restricted by?

(1 point)

c) How is the range of a function g^{-1} related to the function g?

(1 point)

10. a) For what type of function (*one to one*, *one to many*, *many to one*, *many to many*) can an inverse function be found?

(1 point)

b) How can we change a *one to many* function into a *one to one* function?

(1 point)

c) What is a *self inverse* function?

(3 points)

11. Describe the geometrical transformation of $y = e^x$ to $y = e^{2x-1}$ being careful about the order of transformations applied.

(3 points)

12. For what values of the gradient will an iterative staircase/cobweb method converge?

(1 point)

13. $\frac{6x^2+5}{(2x+2)(x-3)} = A + \frac{B}{(2x+2)} + \frac{C}{(x-3)}$. What is A here?

(1 point)

14. Differentiate $y = 2^{3x}$

(1 point)

15. Given that $log_3 3 = 1$, find x here… $log_3 x = 2$

(1 point)

Last Minute Revision Quiz - Answers

1. Where does the graph of $y = lnx$ intercept the x axis? At $x = 1$.

(1 point)

2. What does $arcsin$ mean? $\sin^{-1} x$

(1 point)

3. Sketch the following graphs with appropriate axes:

d) $sin^{-1}x$ *e)* $cos^{-1}x$ f) $tan^{-1}x$

(1 point each)

4. What are the double angle trig identities? $\sin(2x) = 2sinxcosx$, $cos2x = \cos^2 x - \sin^2 x$

(1 point each)

5. $\int \frac{6x^2+6}{x^3+3x+2} dx = \ln(x^3 + 3x + 2)$+c

(2 points)

6. $\int \frac{3x^5+2}{\sqrt{x}} dx = \int 3x^{\frac{9}{2}} + 2x^{-1/2} dx$ etc.

(2 points)

7. Show that there is a solution to the equation $x^3 + 4x = 3$ between 0.5 and 1.0

Set equal to zero etc. (1 point)

8. a) What is a good first step in the process for solving equations such as $|x^2+3x+2| = 3$?

(1 point)

b) For what values of k do the equations $y = |2-x^2|$ and $y = k$, have 0, 2, 3 and 4 roots?

(3 points)

9. a) Given the composite function gf, how is the range of f related to the function g?

The range of f is the domain of g (1 point)

b) In the same composite function gf, what is the range of g restricted by?

(1 point)

c) How is the range of a function g^{-1} related to the function g?

(1 point)

10. a) For what type of function (*one to one*, *one to many*, *many to one*, *many to many*) can an inverse function be found?

(1 point)

b) How can we change a *one to many* function into a *one to one* function?

Restrict the domain (1 point)

c) What is a *self inverse* function?

A function for which $f(x) = f^{-1}(x)$ (3 points)

11. Describe the geometrical transformation of $y = e^x$ to $y = e^{2x-1}$ being careful about the order of transformations applied.

Translate (1, 0) then stretch SF ½ or… (3 points)

12. For what values of the gradient will an iterative staircase/cobweb method converge?

When $\left|\frac{dy}{dx}\right| < 1$ (1 point)

13. $\frac{6x^2+5}{(2x+2)(x-3)} = A + \frac{B}{(2x+2)} + \frac{C}{(x-3)}$. What is A here?

$A = 3$ (1 point)

14. Differentiate $y = 2^{3x}$

$\frac{dy}{dx} = 3ln2 \times 2^{3x}$ (1 point)

15. Given that $log_3 3 = 1$, find x here… $log_3 x = 2$

$x = 9$ (1 point)