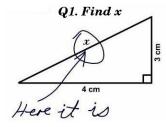
# MA211 **Lecture 12: Class Test**

Wed 16 October 2008



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## Solutions

# Q2 (i)

Write down the general solution to the following differential equation: 25y''-20y'+4y=0.

**Q1.** Using that  $\cosh(x)=\frac{1}{2}\big(e^{-x}+e^x\big)$  and  $\sin(x)=\frac{1}{2}\big(e^{-x}-e^x\big)$  to show that

$$\cosh^2 x - \sinh^2 x = 1.$$

 $\ensuremath{\mathbf{Q2.}}$  Write down the general solution to the following differential equations:

(i) 
$$25y'' - 20y' + 4y = 0$$
.

solution to the differential equation:

(ii) 
$$y'' + y' - 12y = 0$$

**Q3.** Find values of b and c such that  $y(x) = \cosh(2x)$  is a

$$y'' + by' + cy = 0.$$

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## Solutions

#### Q2 (ii)

Write down the general solution to the following differential equation: y''+y'-12y=0

# Solutions

# Q1

Using that  $\cosh(x)=\frac{1}{2}\big(e^{-x}+e^x\big)$  and  $\sin(x)=\frac{1}{2}\big(e^{-x}-e^x\big)$  to show that

$$\cosh^2 x - \sinh^2 x = 1.$$

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## Solutions

# Q3

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Find values of b and c such that  $y(x) = \cosh(2x)$  is a solution to the differential equation:

$$y'' + by' + cy = 0.$$

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