

# Mixed Algebra 1 ms

0 min  
0 marks

1. (a)  $x(x + 5) = 84$  B1

(b)  $\frac{(x - 7)(x + 12)}{7}$  M1,A1  
B1ft

*M1 for  $(x+a)(x+b)$  where  $ab = \pm 84$   
A1 if correct  
B1 for stating positive value*

[4]

2. (a)  $\sqrt{18}$  M1,A1cao

*M1 for  $AB^2 = 3^2 + 3^2$   
A1 for answer*

(b)  $y = x+2$  M1,A1,A1ft

*M1 for Attempt to find gradient  
A1 for Gradient =  $\frac{3}{3} = 1$   
Ft their gradient but must be + 2.*

[5]

3. (a)  $L = \frac{k}{d^2}$   
 $2 = \frac{k}{10^2}$   
or  $2 = \frac{k}{100}$  or  $k = 200$   
 $L = \frac{200}{d^2}$  M1,M1,A1  
or  $Ld^2 = 200$

(b) 50 B1

(c)  $d = \sqrt{200 / 8}$  M1  
oe

$d = 5$  A1

[6]

4.  $a = \frac{1}{2}$ ,  
 $b = 1, c = -2$   
 $a = 1, b = 2, c = -4$   
or any other set of multiples B3  
or gradient = -0.5  
B1  
or line passing through (0, -2)  
B1  
or  $y = -0.5x - 2$   
B2  
or correct line drawn  
B1

[3]

5. (a)  $y = (x + 3)^2$  B1

(b)  $y = x^2 - 2$  B1

(c)  $y = 0.5x^2$  B1

[3]

6. (a)  $\frac{8x}{(2x-1)}$  B3

$8x(x+3)$   
*B1*  
 $(2x-1)(x+3)$   
*B1*

(b)  $2a = -6$  M1  
 $a^2 + b = 13$  M1  
 $a = -3$  and  $b = 4$  A1  
*or*  $x^2 + 2ax + a^2 + b (= x^2 - 6x + 13)$

[6]

7. (a)  $a^2 + 2a\sqrt{6} + 6$  B2  
*- 1 eoo but must have middle terms at some stage.*

(b) 4 with convincing explanation M1,A1,M1,A1,A1  
*M1 for  $(a + \sqrt{6})^2 + (a - \sqrt{6})^2$*   
*A1 for  $2a^2 + 12$*   
*M1 for  $(a + \sqrt{6})^2 + (a - \sqrt{6})^2 = (2\sqrt{11})^2$*   
*a1 for  $2a^2 = 44$*   
*A1 answer*

[7]

8. (a)  $6x^2 + x - 15$  M1,A1,A1  
*M1 for expanding (must have 4 terms)*  
*A1 for at least 3 correct*  
*A1 cao*

(b) (i)  $y$  B1

(ii)  $y^{-1}$  B1

[5]

9. (a)  $-2, -1, 0, 1, 2$  B2  
*-1 eoo*

(b)  $x > 8, x < -8$

B1,B1

[4]

10. (i) C

B1

(ii) A

B1

(iii) D

B1

[3]