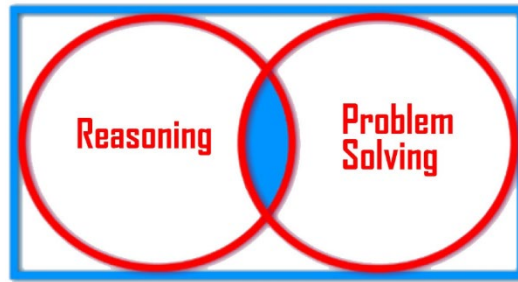


## GCSE Foundation (5 – 1)



[fluidmaths.co.uk](http://fluidmaths.co.uk)

### Mathematical Reasoning Questions

#### (Linear Equations) – Set 1

**The marks shown are for guidance purposes only  
[Total marks: 22 Marks]**

1	<p>Show that if <math>3x + 5 = 17</math> then <math>x</math> must be 4</p> <p style="text-align: right;"><b>[1Mark]</b></p>
2	<p>Explain how you would solve the equation</p> $3^x + 5^x = 152$ <p style="text-align: right;"><b>[1Mark]</b></p>
3	<p>Here are three equations</p> <p>a) <math>6x - \frac{1}{2} = 22</math></p> <p>b) <math>20 - 2x = 13</math></p> <p>c) <math>3x + 5 = 7x - 8</math></p> <p>One of these equations has an answer of 3.5. Which one is it?</p> <p style="text-align: right;"><b>[1Mark]</b></p>

- 4 Here is an equation  $5(x + 2) + 2(x - 3) = 25$   
Ryan says 'Since there are two 'x's, the equation will have two answers. Is Ryan correct? Justify your answer

[2Marks]

- 5 Here is Nala's answer to the equation  $3(2x + 1) = 21$   
 $6x + 3 = 21$   
 $6x = 18$   
 $x = 3$   
Use a different method to solve the same equation

[2Marks]

- 6 Given that  $10^a - 15 = 9985$ . Then  $a$  must be equal to  
Choose one answer
- a) 2.5
  - b) 4.5
  - c) -3
  - d) 4

[2Marks]

- 7 Solve the equation  $6x - 5 = 3x + 20$

**Lilly's Answer**

$$3x = 15$$

$$x = 5$$

Lilly is wrong. Find her mistake and correct it.

[2Marks]

**8** Trisha is solving the equation below

$$5(3 - 4x) + 6x - 7 = 35$$

**Here is her Answer**

Expand the brackets first:  $15 - 4x + 6x - 7 = 35$

Simplify by collecting the like terms:  $8 - 2x = 35$

Subtract 8 from both sides:  $-2x = 27$

Divide both sides by  $-2$ :  $x = -13.5$

Identify the two mistakes Trisha made and give the correct solution

**[3Marks]**

**9** Answer **True** or **False**

a) If  $20 - x = 30$  then  $x$  must be less than 0

b) If  $5.7 + 2x = 6.3$  then  $x$  is exactly 0.6

c) If  $-7x + 20 = 34$  then  $x$  is greater than  $-3$

**[3Marks]**

10



Given that  $x + y = \frac{2}{3}$  and  $y - z = 5$  and  $z = -3$

Find the value of  $x - y - z$

**[5Marks]**