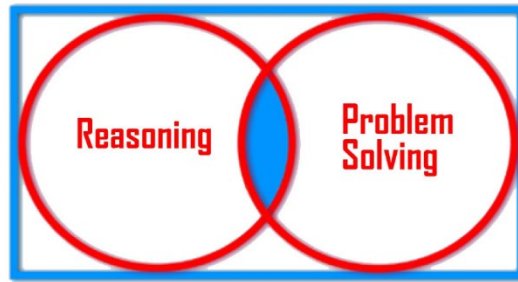


## GCSE Foundation (5 – 1)



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


### Mathematical Reasoning Questions

#### (Indices) – Set 1

**The marks shown are for guidance purposes only  
[Total marks: 23 Marks]**

1	<p>If <math>3x = 6</math>, what is the value of the expression <math>3^x + x^3</math></p> <p>a) 12  b) 17  c) 9  d) <math>3^{2x} + 2x^3</math></p> <p style="text-align: right;"><b>[2Marks]</b></p>
2	<p>Circle all the expressions which are equivalent to <math>27a^3b^2</math></p> <p>a) <math>9a \times 3b</math>  b) <math>81a^3b^3 \div 3b</math>  c) <math>3b \times 9a^3b</math>  d) <math>30a^2b - 3ab^2</math></p> <p style="text-align: right;"><b>[2Marks]</b></p>
3	<p>Complete the following calculation by filling in the missing terms using an expression or a number</p> $3a \square b \times 2a \square = \square a^3 b^2$ <p style="text-align: right;"><b>[3Marks]</b></p>

4	<p>Which of the following is NOT equal to <math>18xy^2</math>?</p> <p>a) <math>9x^2 \times 2y^3</math>  b) <math>18xy^{-2} \times y^4</math>  c) <math>36xy^4 \div 2y^2</math>  d) <math>6x^2 \times 3y^6</math></p> <p style="text-align: right;"><b>[2marks]</b></p>
5	<p>Choose the correct answer when the expression <math>5x^3 + 6x^2</math> is simplified</p> <p>a) <math>11x^5</math>  b) <math>11x^6</math>  c) <math>11x^3 + x^2</math>  d) None of the Above</p> <p style="text-align: right;"><b>[1Mark]</b></p>
6	<p>If <math>a * b = b^3 - a</math> then what is the value of <math>6 * 2</math></p> <p style="text-align: right;"><b>[2Marks]</b></p>

<p>7</p> 	<p>Given that <math>2^x = 64</math> and <math>x = 14y</math>, circle the correct value for <math>y</math></p> <p>a) <math>\frac{7}{3}</math>  b) 7  c) 3  d) <math>\frac{3}{7}</math></p> <p style="text-align: right;"><b>[2Marks]</b></p>
<p>8</p>	<p>Given that <math>50x^4y \div 10xy^8 = Ax^3y^b</math>  Find the values of <math>A</math> and <math>b</math></p> <p style="text-align: right;"><b>[2marks]</b></p>
<p>9</p>	<p>You are told that <math>\frac{1}{x} = x^{-1}</math>  Answer <b>True</b> or <b>False</b> to the following statements</p> <p>a) <math>2^{-1} = \frac{1}{2}</math>  b) <math>3^{-1} + 4^{-1} = \frac{7}{12}</math>  c) <math>3^{-1} + 4^{-1} = \frac{1}{7}</math>  d) <math>5^{-2} = \frac{1}{25}</math></p> <p style="text-align: right;"><b>[4Marks]</b></p>

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Simplify the expression  $\frac{27x^{12} \times 3x^8}{x^{10} \div x^{-2}}$

Choose one answer

a)  $81x^{20}$

b)  $81x^8$

c)  $81x^{12}$

d)  $81x^{-4}$

**[3Marks]**