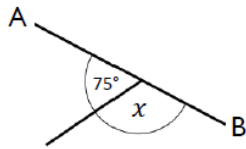


## Year 7 Core- Geometric Reasoning Answers

1.

AB is a straight line.



Work out the value of the angle labelled  $x$ .

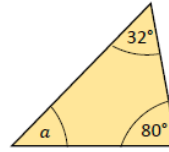
$$x = 105^\circ$$

Give a reason for your answer.

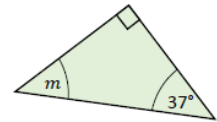
Angles on a straight line add up to  $180^\circ$

2.

Work out the size of the missing angle in each triangle.



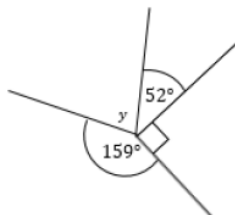
$$a = 68^\circ$$



$$m = 53^\circ$$

3.

Jack writes the following calculation to find  $y$ .



$$159 + 52 = 211$$

$$360 - 211 = 149$$

$$y = 149^\circ$$

Explain why Jack is wrong.

Jack is wrong because he has forgotten to include the right angle in his calculation.

$$159 + 52 + 90 = 301$$

$$360 - 301 = 59$$

Work out the correct value of  $y$ .  $y = 59^\circ$

4.

One angle in an isosceles triangle is  $50^\circ$ . What could the size of the other two angles be? Give two possible answers.

Solution 1:  $50^\circ$  and  $80^\circ$

Solution 2:  $65^\circ$  and  $65^\circ$

5.

Label these angles as acute, right, obtuse or reflex:



obtuse



right



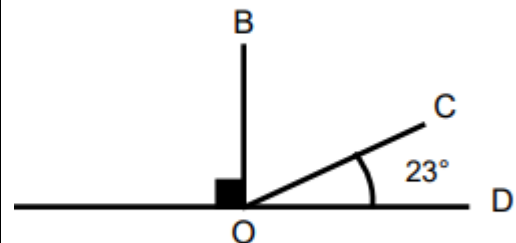
acute



reflex

6.

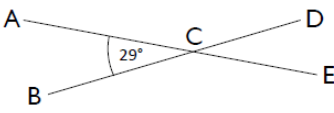
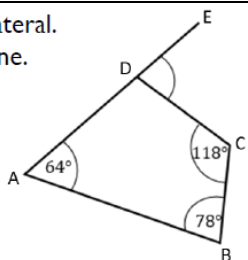
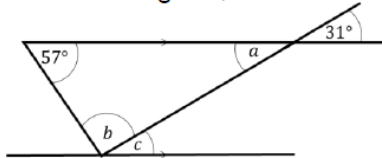
Calculate the acute angle BOC:



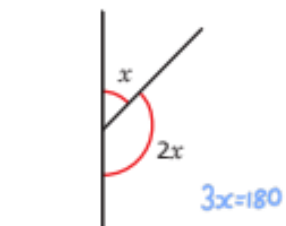
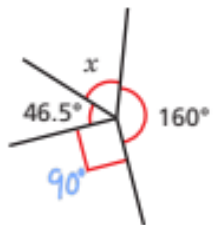
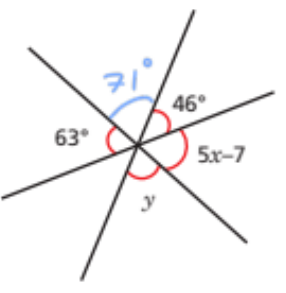
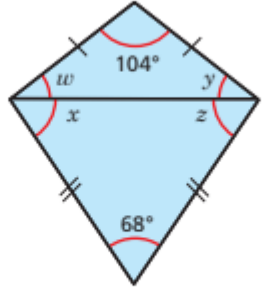
angle BOC =

$67^\circ$

## Year 7 Core- Geometric Reasoning Answers

|  |   |
|--|---|
| <p><b>7.</b> The straight line segments AE and BD cross at the point C.</p>  <p>Complete the sentence using a word or words from the box.</p> <div style="border: 1px solid purple; padding: 5px; display: inline-block; margin: 5px 0;">             Perpendicular    parallel    vertically opposite         </div> <p><math>\angle ACD</math> and <math>\angle BCE</math> are <u>vertically opposite</u>.</p> <p>What is the size of <math>\angle DCE</math>?</p> <p style="text-align: right;"><u>29°</u></p> | <p><b>8.</b> A triangle has the following three angles: <math>a</math>, <math>2a</math> and <math>3a</math>.</p> <p>Form and solve an equation to find the size of the <b>largest</b> angle in the triangle.</p> <p><math>a + 2a + 3a = 180</math> (1 mark)</p> <p><math>6a = 180</math></p> <p><math>a = 30</math> (1 mark)</p> <p>Largest angle = <math>3 \times 30</math>      <u>90° (1 mark)</u></p> |
| <p><b>9.</b> ABCD is a quadrilateral. ADE is a straight line.</p>  <p>Work out the value of angle CDE.</p> <p>s angle sum of quadrilateral (1 mark) <u>80° (1 mark)</u></p>  | <p><b>10.</b> Calculate the size of angles <math>a</math>, <math>b</math> and <math>c</math>.</p>  <p><u><math>a = 31^\circ</math></u>      <u><math>b = 92^\circ</math></u>      <u><math>c = 31^\circ</math></u></p>  |
| <p><b>11.</b> What is the size of each angle in a regular hexagon?</p> $\frac{6 - 2}{6} \times 180 =$ <p>mark for any correct method      <u>120° (1 mark)</u></p>   |   |

## Year 7 Higher – Geometric Reasoning Answers

|    |   |    |   |
|----|---|----|---|
| 1. | <p>Work out the value of <math>x</math>.</p>  <p style="text-align: right;"><math>3x=180</math></p> <p><math>x = </math> <span style="border: 1px solid black; padding: 2px 10px;"><math>60^\circ</math></span></p>  | 2. |  <p style="text-align: center;"><math>x = </math> <span style="border: 1px solid black; padding: 2px 10px;"><math>63.5^\circ</math></span></p>  |
| 3. | <p>One of the angles in a triangle is <math>38^\circ</math>. Another angle is twice the size of the first angle. What is the size of the third angle?</p> <p><span style="border: 1px solid black; padding: 2px 10px;"><math>66^\circ</math></span></p>   | 4. | <p>Angle <span style="border: 1px solid black; padding: 2px 10px;"><math>JLK</math></span> is <math>83^\circ</math> because <u>angles on a straight line sum to <math>180^\circ</math></u> or <u>angles in a triangle sum to <math>180^\circ</math></u></p>   |
| 5. |  <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: left;"> <math display="block">5x - 7 = 63</math> <math display="block">+7 \quad +7</math> <math display="block">5x = 70</math> <math display="block">\div 5 \quad \div 5</math> <math display="block">x = 14</math> </div> <div style="text-align: left;"> <math display="block">63 + 46 = 109</math> <math display="block">180 - 109 = 71</math> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"><math>x = </math> <span style="border: 1px solid black; padding: 2px 10px;"><math>14^\circ</math></span></div> <div style="text-align: center;"><math>y = </math> <span style="border: 1px solid black; padding: 2px 10px;"><math>71^\circ</math></span></div> </div> | 6. | <p>a) Work out the sizes of the unknown angles.</p>  <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"><math>w = </math> <span style="border: 1px solid black; padding: 2px 10px;"><math>38^\circ</math></span></div> <div style="text-align: center;"><math>y = </math> <span style="border: 1px solid black; padding: 2px 10px;"><math>38^\circ</math></span></div> <div style="text-align: center;"><math>x = </math> <span style="border: 1px solid black; padding: 2px 10px;"><math>56^\circ</math></span></div> <div style="text-align: center;"><math>z = </math> <span style="border: 1px solid black; padding: 2px 10px;"><math>56^\circ</math></span></div> </div> |