False
 True
 True
 False
 True
 True

 a) angle b = 125°
 angle c = 55°
 b) angle d = 142°
 angle e = 38°
 c) angle f = 158°
 d)angle g = 40°
 angle h = 40°
 angle h = 40°
 angle j = 37°
 angle k = 103°

```
1) p = 42^{\circ}
x = 48^{\circ}
z = 138^{\circ}
```

1) angle *x* = 51°

2) Mia's strategy would not work. Angles a and d are equal as they are opposite angles. She could work out angle e as $e + a = 180^{\circ}$, however her method would still leave angles b and c unknown.

Surinder's strategy would work. By revealing angle d, he would be able to calculate the value of angle e as angles $d + e = 180^{\circ}$. By revealing angle d, he would also know the value of the equal, opposite angle a. If he then knows angle c, he would be able to calculate the value of the only remaining angle, angle b.

3) Dara is incorrect. Angle z is not actually vertically opposite the 84° angle so this strategy will not work.

Conor is correct. By adding the 90° angle and the 42° together and then subtracting the result from 180°, we find that angle z measures 48°.

```
angle y = 39°
angle z = 95°
2) a = 77°
b = 77°
c = 96°
d = 96°
e = 55°
f = 46°
g = 93°
3) a) The fewest number of angles that would need to be measured with a protractor would be two angles
(either the angle between red and yellow or purple and yellow and the angle between black and purple or
black and red). The others could then be calculated.
```

b) As there are four angles that make up a straight line, you would need to measure three angles. Once you know the three angles on a straight line, you could use the fact that opposite angles are the same to work out the rest of the angles around the point.



