<table>
<tr><th>Question</th><th>Question</th><th>Answer</th></tr>
<tr><td>1 a)</td><td>
<table>
<tr><td></td><td>Walk</td><td>Car</td><td>Other</td><td>TOTAL</td></tr>
<tr><td>Boys</td><td>15</td><td>54-15-14 = 25</td><td>14</td><td>54</td></tr>
<tr><td>Girls</td><td>37-15 = 22</td><td>8</td><td>16</td><td>22+8+16=46</td></tr>
<tr><td><u>TOTAL</u></td><td><u>37</u></td><td><u>25+8 = 33</u></td><td><u>14+16=30</u></td><td><u>100</u></td></tr>
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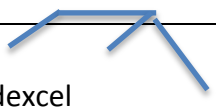
</td><td></td></tr>
<tr><td>b)</td><td>The number who walked is 37 so the probability is $\frac{37}{100}$.</td><td>$\frac{37}{100}$</td></tr>
<tr><td>2. a)</td><td>$4x + 3y - 2x + 5y$
Collect similar terms.
$4x - 2x + 3y + 5y = 2x + 8y$</td><td>$2x + 8y$</td></tr>
<tr><td>b)</td><td>Compasses are c pence and rulers are r pence therefore 2 compasses and 4 rulers are = 2c + 4r.</td><td>$2c + 4r$</td></tr>
<tr><td>3 a)</td><td>
<table>
<tr><td>x</td><td>-2</td><td>-1</td><td>0</td><td>1</td><td>2</td><td>3</td></tr>
<tr><td>Y</td><td>-11</td><td>4(-1)-3=-7</td><td>-3</td><td>4(1)-3=1</td><td>4(2)-3=5</td><td>9</td></tr>
</table>
</td><td></td></tr>
<tr><td>b)</td><td>Carefully plot the points and then draw a straight line between the points.</td><td></td></tr>
<tr><td>4 a)</td><td>$P = 4k - 10$
If P=50 then
$50 = 4k - 10$
$50 + 10 = 4k$
$4k = 60$
$k = 15$</td><td>$k = 15$</td></tr>
<tr><td>b)</td><td>$y = 4n - 3d$
$y = 4(2) - 3(5) = 8 - 15 = -7$</td><td>$y = -7$</td></tr>
<tr><td>5 a)</td><td>The shape will be in the bottom left on its side and the point (2,2) will move to (2,-2)</td><td></td></tr>
</table>

b)	P to Q is 3 to the right and 1 down or $T\begin{pmatrix}3\\-1\end{pmatrix}$	$\boldsymbol{T\begin{pmatrix}3\\-1\end{pmatrix}}$
6 a)	The shape is a rectangle so the long sides must be the same length.	
b)	$4x+1=2x+12$ $4x=2x+12-1$ $4x=2x+11$ $4x-2x=11$ $2x=11$ $x=\frac{11}{2}$	$\boldsymbol{x=\frac{11}{2}}$
c)	The perimeter is the total of ALL the sides given by $x+x+2x+12+4x+1=8x+13=8\times\frac{11}{2}+13$ $=44+13=57$	**57 cm**
7 a)	There are three numbers after the decimal so we move the decimal point 3 places to the left. Giving: 15.456	**15.456**
b)	There are five numbers after the decimal point so we move the decimal point 5 places to the left. Giving: 0.15456	**0.15456**
c)	From the top equation we can see that 15456÷48=322 but 4.8 is 10 times less so 15456÷4.8=3220.	**3220**
8 a)	$2x^2=72$ $x^2=36$ $x=\pm6$	$\boldsymbol{x=\pm6}$
b)	2| 72 2| 36 2| 18 3| 9 3| 3 Prime factors are: $2\times2\times2\times3\times3=2^3\times3^2$	$\boldsymbol{2^3\times3^2}$
9 a)		
b)		

		
10	There are 40 litres = 40000 ml. It leaves at 125 ml per sec. Number of seconds $= \frac{40000}{125}$. It takes 8 secs to remove a litre so it takes $40 \times 8 = 320$ secs.	**320 secs**
11 a)	What is the minimum value that would round up to 63 which is 62.5 cm.	**62.5 cm**
b)	The greatest possible length is 63.45 cm.	**63.49 cm**
12	Set your compass to 4 cm and draw a circle across the triangle from point B. Next measure the angle at A and draw a line down the exact middle of the angle. The shaded area is the area where these two regions overlap.	
13 a)	How many of each type of magazine do you read each week [ ] Fashion/women's magazines [ ] Men's magazines [ ] Car magazines [ ] Comics [ ] Other	
b)	How many magazines have you read in the last month. [ ] 0 [ ] 1-2 [ ] 2-4 [ ] 4+	
14	6.8 is approximately 7 191 is approximately 190 0.051 is approximately 0.05 Therefore $\frac{7\times190}{0.05} = \frac{7\times190\times100}{5} = 7 \times 190 \times 20 = 140 \times 190$ Do long multiplication of 14 x 19 and add two zeros = 26600	$= \mathbf{26600}$
15 a)	Standard form is 6.4×10^4	$\mathbf{6.4 \times 10^4}$
b)	$156 \times 10^{-7} = 1.56 \times 10^{-5}$	$\mathbf{1.56 \times 10^{-5}}$
16 a)	$4x^2 - 6xy = 2x(2x - 3y)$	$\mathbf{2x(2x - 3y)}$

b)	$x^2 + 5x - 6 = (x + 6)(x - 1)$	$\boldsymbol{(x + 6)(x - 1)}$
17 a)	Carefully plot the numbers against the width as bars.	
b)	The median will be at the 60th man which is towards the end of the 4rd bar so its nearer £250 than £200 so say £240.	**£240**
c)	Women spend less money during their summer holidays than men.	
18 a)	The triangle AOD is a right angled triangle so AOD = $90 - 36 = 54°$	**54°**
b)	27	**27°**
c)	Angle at the circumference is half that at the centre.	
19 a)	Reading directly from the graph so **x=2, y=3**	$\boldsymbol{x = 2, y = 3}$
b)	If it is parallel then the gradient (m) is the same but the intercept (c) will be different in the equation $y = mx + c$. Therefore $y = \frac{1}{2}x + c$ substitute in point (0,4) to find *c*. $4 = \frac{1}{2}(0) + c$ and *c = 4.* Therefore $y = \frac{1}{2}x + 4$.	$\boldsymbol{y = \frac{1}{2}x + 4}$
20 a)	$3t + 1 < t + 12$ $3t - t < 12 - 1$ $2t < 11$ $t < \frac{11}{2}$	$\boldsymbol{t < \frac{11}{2}}$
b)	The largest value that t can be is therefore 5.	
21	$M \propto L^3$ $M = kL^3$ where is some constant k. Put in values to find k $160 = k \times 2^3$ $160 = 8k$ $k = 20$ $M = 20L^3$. Therefore when L=3 $M = 20 \times 3^3 = 20 \times 27 = 540$	**540**
22	Carefully draw the histogram. Work out the Frequency densities which are the frequency	

<table>
<tr><td></td><td>divided by width.
<table>
<tr><td>Length</td><td>$0 < x \leq 5$</td><td>$5 < x \leq 15$</td><td>$15 < x \leq 30$</td><td>$30 < x \leq 40$</td><td>$40 < x \leq 45$</td></tr>
<tr><td>Frequency</td><td>4</td><td>10</td><td>24</td><td>20</td><td>6</td></tr>
<tr><td>Width</td><td>5</td><td>10</td><td>15</td><td>10</td><td>5</td></tr>
<tr><td>FD</td><td>0.8</td><td>1</td><td>1.6</td><td>2</td><td>1.2</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="6">The height of each bar is the FD so the area represents the frequency.</td></tr>
<tr><td colspan="6"></td></tr>
<tr><td colspan="6"></td></tr>
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<tr><td>23 a)</td><td>The changes that Vishi loses is $1 - 0.5 - 0.3 = 0.2$.
The probabilities on the second branches are the same for each win, draw and lose.</td><td></td></tr>
<tr><td>b)</td><td>Follow the branch of win followed by win give 0.5 x 0.5 = 0.25.</td><td>0.25</td></tr>
<tr><td>24 a)</td><td>For two shapes to be congruent they must be the same size.
AB=BC as it is an equilateral triangle.
AD is common to both triangles as they are equal.
BD=DC as the line AD is a perpendicular bisector</td><td></td></tr>
<tr><td>b)</td><td>Angle BAD is 30 degrees as it is half 60 degrees (angles in an equilateral triangle). Let AB = x.
Therefore $sin\ 30 = \frac{BD}{AB} = \frac{BD}{x}$
$\frac{1}{2} = \frac{BD}{x}$ and $BD = \frac{AB}{2}$.</td><td></td></tr>
<tr><td>25 a)</td><td>$\frac{1}{u} + \frac{1}{v} = \frac{1}{f}$
$u = \frac{5}{2}$ and $v = \frac{10}{3}$. Therefore
$\frac{2}{5} + \frac{3}{10} = \frac{1}{f}$. Find a common denominator
$\frac{4+3}{10} = \frac{1}{f}$
$\frac{7}{10} = \frac{1}{f}$ $\quad f = \frac{10}{7} = 1\frac{3}{7}$</td><td>$f = 1\frac{3}{7}$</td></tr>
<tr><td>b)</td><td>$\frac{1}{u} + \frac{1}{v} = \frac{1}{f}$
$\frac{1}{u} = \frac{1}{f} - \frac{1}{v}$
$\frac{1}{u} = \frac{v-f}{fv}$
$u = \frac{fv}{v-f}$</td><td>$u = \frac{fv}{v-f}$</td></tr>
<tr><td>26 a)</td><td>Translation is $y = f(x-4)$</td><td></td></tr>
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b)	The 3 makes it 3 times as tall so it runs from 3 to -3 and the 2x means it is twice as skinny.	