1. **Solution**
Let x represent a datum of interest. Let i represent that datum's index. Let ℓ represent that datum's percentile. Let n represent the sample size (number of measurements). In general,

$$\ell = \frac{i}{n}$$

(a) We are given $x = 22.017$. This means $i = 11$. We know $n = 11$. Determine the percentile ℓ.

$$\ell = \frac{11}{11}$$

$$\ell = 1$$

So, the answer is 1, or 100%.

(b) We are given $\ell = 0.364$. We can use algebra to solve for i.

$$\ell = \frac{i}{n}$$

Multiply both sides by n.

$$n \cdot (\ell) = n \cdot \left(\frac{i}{n}\right)$$

Simplify both sides.

$$n\ell = i$$

To make me happy, switch the sides.

$$i = n\ell$$

Now, we can evaluate i.

$$i = (11)(0.364)$$

$$i = 4$$

Determine the x associated with $i = 4$.

$$x = 21.364$$

(c) The mean is $\frac{236.519}{11} = 21.5017273$

(d) If n is odd, then median is $x_{\frac{n+1}{2}}$, the value of x when $i = \frac{n+1}{2}$. Otherwise median is mean of $x_{\lfloor \frac{n+1}{2} \rfloor}$ and $x_{\lceil \frac{n+1}{2} \rceil}$. So, median = 21.463.

2. **Solution**
Let x represent a datum of interest. Let i represent that datum's index. Let ℓ represent that datum's percentile. Let n represent the sample size (number of measurements). In general,

$$\ell = \frac{i}{n}$$

(a) We are given $x = 41.753$. This means $i = 35$. We know $n = 40$. Determine the percentile ℓ.

$$\ell = \frac{35}{40}$$

$$\ell = 0.875$$

So, the answer is 0.875, or 87.5%.

(b) We are given $\ell = 0.3$. We can use algebra to solve for i.

$$\ell = \frac{i}{n}$$

Multiply both sides by n.

$$n \cdot (\ell) = n \cdot \left(\frac{i}{n}\right)$$

Simplify both sides.

$$n\ell = i$$

To make me happy, switch the sides.

$$i = n\ell$$

Now, we can evaluate i.

$$i = (40)(0.3)$$

$$i = 12$$

Determine the x associated with $i = 12$.

$$x = 41.357$$

(c) The mean is $\frac{1658.932}{40} = 41.473$

(d) If n is odd, then median is $x_{\frac{n+1}{2}}$, the value of x when $i = \frac{n+1}{2}$. Otherwise median is mean of $x_{\lfloor \frac{n+1}{2} \rfloor}$ and $x_{\lceil \frac{n+1}{2} \rceil}$. So, median = 41.469.