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 $x = 20.796$. This means $i = 5$. We know $n = 11$. Determine the percentile ℓ.

$$\ell = \frac{5}{11}$$

$$\ell = 0.455$$

So, the answer is 0.455, or 45.5%.

(b) We are given $\ell = 0.909$. 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.

$$i = (11)(0.909)$$

$$i = 10$$

Determine the x associated with $i = 10$.

$$x = 21.323$$

(c) The mean is $\frac{228.425}{11} = 20.7659091$

(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 = 20.839.

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 $x = 34.692$. This means $i = 43$. We know $n = 49$. Determine the percentile ℓ.

$$\ell = \frac{43}{49}$$

$$\ell = 0.878$$

So, the answer is 0.878, or 87.8%.

(b) We are given $\ell = 0.204$. 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.

$$i = (49)(0.204)$$

$$i = 10$$

Determine the x associated with $i = 10$.

$$x = 32.503$$

(c) The mean is $\frac{1639.422}{49} = 33.458$

(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 = 33.542.