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 $x = 94.713$. This means $i = 4$. We know $n = 9$. Determine the percentile ℓ.

$$\ell = \frac{4}{9}$$

$$\ell = 0.444$$

So, the answer is 0.444, or 44.4%.

(b) We are given $\ell = 0.889$. 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.

$$i = (9)(0.889)$$

$$i = 8$$

Determine the x associated with $i = 8$.

$$x = 99.88$$

(c) The mean is $\frac{864.128}{9} = 96.0142222$

(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 = 94.766.

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 $x = 40.767$. This means $i = 14$. We know $n = 28$. Determine the percentile ℓ.

$$\ell = \frac{14}{28}$$

$$\ell = 0.5$$

So, the answer is 0.5, or 50%.

(b) We are given $\ell = 0.536$. 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.

$$i = (28)(0.536)$$

$$i = 15$$

Determine the x associated with $i = 15$.

$$x = 40.882$$

(c) The mean is $\frac{1142.96}{28} = 40.82$

(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 = 40.824.