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 $x = 60.065$. This means $i = 7$. We know $n = 10$. Determine the percentile ℓ.

$$\ell = \frac{7}{10}$$

$$\ell = 0.7$$

So, the percentile rank is $\boxed{0.7}$, or 70th percentile.

(b) We are given $\ell = 0.4$. 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.

$$i = (10)(0.4)$$

$$i = 4$$

Determine the x associated with $i = 4$.

$$x = \boxed{58.557}$$

(c) The mean: $\bar{x} = \frac{592.946}{10} = \boxed{59.295}$

(d) If n is odd, then median is $x_{i=\frac{n+1}{2}}$, the value of x when $i = \frac{n+1}{2}$. Otherwise, if n is even, the median is mean of $x_{i=\frac{n}{2}}$ and $x_{i=\frac{n}{2}+1}$. In this case, $n = 10$ and so n is even.

$$\text{median} = \frac{x_5 + x_6}{2} = \frac{59.222 + 59.858}{2}$$

So, median = $\boxed{59.54}$.

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 $x = 11.265$. This means $i = 9$. We know $n = 48$. Determine the percentile ℓ.

$$\ell = \frac{9}{48}$$

$$\ell = 0.188$$

So, the percentile rank is $\boxed{0.188}$, or 18.8th percentile.

(b) We are given $\ell = 0.646$. 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.

$$i = (48)(0.646)$$

$$i = 31$$

Determine the x associated with $i = 31$.

$$x = \boxed{11.536}$$

(c) The mean: $\bar{x} = \frac{551.096}{48} = \boxed{11.481}$

(d) If n is odd, then median is $x_{i=\frac{n+1}{2}}$, the value of x when $i = \frac{n+1}{2}$. Otherwise, if n is even, the median is mean of $x_{i=\frac{n}{2}}$ and $x_{i=\frac{n}{2}+1}$. In this case, $n = 48$ and so n is even.

$$\text{median} = \frac{x_{24} + x_{25}}{2} = \frac{11.386 + 11.392}{2}$$

So, median = $\boxed{11.389}$.