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 $x = 60.769$. This means $i = 6$. We know $n = 8$. Determine the percentile ℓ.

   $$\ell = \frac{6}{8}$$

   $$\ell = 0.75$$

   So, the percentile rank is $\boxed{0.75}$, or 75th percentile.

   (b) We are given $\ell = 0.875$. 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.

   $$i = (8)(0.875)$$

   $$i = 7$$

   Determine the x associated with $i = 7$.

   $$x = \boxed{61.008}$$

   (c) The mean: $\bar{x} = \frac{513.023}{8} = \boxed{64.128}$

   (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, $n = 8$ and so n is even.

   $$\text{median} = \frac{x_4 + x_5}{2} = \frac{57.544 + 58.937}{2}$$

   So, median = $\boxed{58.2405}$.

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 $x = 91.455$. This means $i = 38$. We know $n = 48$. Determine the percentile ℓ.

$$\ell = \frac{38}{48}$$

$$\ell = 0.792$$

So, the percentile rank is $\boxed{0.792}$, or 79.2th percentile.

(b) We are given $\ell = 0.333$. 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.

$$i = (48)(0.333)$$

$$i = 16$$

Determine the x associated with $i = 16$.

$$x = \boxed{90.558}$$

(c) The mean: $\bar{x} = \frac{4368.11}{48} = \boxed{91.002}$

(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.

$$\text{median} = \frac{x_{24} + x_{25}}{2} = \frac{90.858 + 90.867}{2}$$

So, median = $\boxed{90.8625}$.