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 $x = 32.482$. This means $i = 5$. We know $n = 7$. Determine the percentile ℓ.

   $$\ell = \frac{5}{7}$$

   $$\ell = 0.714$$

   So, the percentile rank is $\boxed{0.714}$, or 71.4th percentile.

   (b) We are given $\ell = 0.286$. 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.

   $$i = (7)(0.286)$$
   $$i = 2$$

   Determine the x associated with $i = 2$.

   $$x = \boxed{31.82}$$

   (c) The mean: $\bar{x} = \frac{225.8}{7} = \boxed{32.257}$

   (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, $n = 7$ and so n is odd.

   $$\text{median} = x_{(7+1)/2,} = x_4$$

   So, median = $\boxed{32.336}$.

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 $x = 128.807$. This means $i = 2$. We know $n = 18$. Determine the percentile ℓ.

   $$\ell = \frac{2}{18}$$

   $$\ell = 0.111$$

   So, the percentile rank is $\boxed{0.111}$, or 11.1th percentile.

   (b) We are given $\ell = 0.389$. 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.

   $$i = (18)(0.389)$$
   $$i = 7$$

   Determine the x associated with $i = 7$.

   $$x = \boxed{148.462}$$

   (c) The mean: $\bar{x} = \frac{2752.595}{18} = \boxed{152.92}$

   (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, $n = 18$ and so n is even.

   $$\text{median} = \frac{x_9 + x_{10}}{2} = \frac{160.95 + 162.854}{2}$$

   So, median $= \boxed{161.902}$.