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 $x = 40.535$. This means $i = 3$. We know $n = 11$. Determine the percentile ℓ.

$$\ell = \frac{3}{11}$$

$$\ell = 0.273$$

So, the answer is 0.273, or 27.3%.

(b) We are given $\ell = 0.182$. 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.

$$i = (11)(0.182)$$

$$i = 2$$

Determine the x associated with $i = 2$.

$$x = 40.437$$

(c) The mean is $\frac{469.674}{11} = 42.6976364$

(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 = 42.309.

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 $x = 85.456$. This means $i = 3$. We know $n = 36$. Determine the percentile ℓ.

$$\ell = \frac{3}{36}$$

$$\ell = 0.0833$$

So, the answer is 0.0833, or 8.33%.

(b) We are given $\ell = 0.139$. 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.

$$i = (36)(0.139)$$

$$i = 5$$

Determine the x associated with $i = 5$.

$$x = 89.182$$

(c) The mean is $\frac{3681.752}{36} = 102.27$

(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 = 103.81.

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 $x = 37.172$. This means $i = 4$. We know $n = 6$. Determine the percentile ℓ.

$$\ell = \frac{4}{6}$$

$$\ell = 0.667$$

So, the answer is 0.667, or 66.7%.

(b) We are given $\ell = 0.5$. 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.

$$i = (6)(0.5)$$

$$i = 3$$

Determine the x associated with $i = 3$.

$$x = 35.362$$

(c) The mean is $\frac{220.681}{6} = 36.7801667$

(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 = 36.267.

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 $x = 54.782$. This means $i = 27$. We know $n = 42$. Determine the percentile ℓ.

$$\ell = \frac{27}{42}$$

$$\ell = 0.643$$

So, the answer is 0.643, or 64.3%.

(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.

$$i = (42)(0.286)$$

$$i = 12$$

Determine the x associated with $i = 12$.

$$x = 37.538$$

(c) The mean is $\frac{2208.248}{42} = 52.577$

(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 = 46.753.

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 $x = 74.949$. This means $i = 8$. We know $n = 12$. Determine the percentile ℓ.

$$\ell = \frac{8}{12}$$

$$\ell = 0.667$$

So, the answer is 0.667, or 66.7%.

(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.

$$i = (12)(0.333)$$

$$i = 4$$

Determine the x associated with $i = 4$.

$$x = 67.169$$

(c) The mean is $\frac{848.94}{12} = 70.745$

(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 = 71.142.

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 $x = 30.998$. This means $i = 13$. We know $n = 32$. Determine the percentile ℓ.

$$\ell = \frac{13}{32}$$

$$\ell = 0.406$$

So, the answer is 0.406, or 40.6%.

(b) We are given $\ell = 0.594$. 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.

$$i = (32)(0.594)$$

$$i = 19$$

Determine the x associated with $i = 19$.

$$x = 31.398$$

(c) The mean is $\frac{1006.696}{32} = 31.459$

(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 = 31.207.

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 $x = 48.152$. This means $i = 2$. We know $n = 10$. Determine the percentile ℓ.

$$\ell = \frac{2}{10}$$

$$\ell = 0.2$$

So, the answer is 0.2, or 20%.

(b) We are given $\ell = 0.7$. 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.

$$i = (10)(0.7)$$

$$i = 7$$

Determine the x associated with $i = 7$.

$$x = 49.927$$

(c) The mean is $\frac{494.639}{10} = 49.4639$

(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 = 49.4195.

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 $x = 52.698$. This means $i = 13$. We know $n = 54$. Determine the percentile ℓ.

$$\ell = \frac{13}{54}$$

$$\ell = 0.241$$

So, the answer is 0.241, or 24.1%.

(b) We are given $\ell = 0.37$. 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.

$$i = (54)(0.37)$$

$$i = 20$$

Determine the x associated with $i = 20$.

$$x = 53.84$$

(c) The mean is $\frac{2966.532}{54} = 54.936$

(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 = 55.208.

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 $x = 51.108$. This means $i = 7$. We know $n = 7$. Determine the percentile ℓ.

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

$$\ell = 1$$

So, the answer is 1, or 100%.

(b) We are given $\ell = 0.571$. 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.

$$i = (7)(0.571)$$

$$i = 4$$

Determine the x associated with $i = 4$.

$$x = 50.518$$

(c) The mean is $\frac{353.713}{7} = 50.5304286$

(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 = 50.518.

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 $x = 95.673$. This means $i = 10$. We know $n = 54$. Determine the percentile ℓ.

$$\ell = \frac{10}{54}$$

$$\ell = 0.185$$

So, the answer is 0.185, or 18.5%.

(b) We are given $\ell = 0.722$. 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.

$$i = (54)(0.722)$$

$$i = 39$$

Determine the x associated with $i = 39$.

$$x = 105.157$$

(c) The mean is $\frac{5401.499}{54} = 100.03$

(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 = 100.4.

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 $x = 111.204$. This means $i = 9$. We know $n = 12$. Determine the percentile ℓ.

$$\ell = \frac{9}{12}$$

$$\ell = 0.75$$

   So, the answer is 0.75, or 75%.

   (b) We are given $\ell = 0.833$. 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.

$$i = (12)(0.833)$$

$$i = 10$$

   Determine the x associated with $i = 10$.

$$x = 112.994$$

   (c) The mean is $\frac{1312.699}{12} = 109.3915833$

   (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 = 110.8555.

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 $x = 22.249$. This means $i = 6$. We know $n = 63$. Determine the percentile ℓ.

$$\ell = \frac{6}{63}$$

$$\ell = 0.0952$$

So, the answer is 0.0952, or 9.52%.

(b) We are given $\ell = 0.762$. 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.

$$i = (63)(0.762)$$

$$i = 48$$

Determine the x associated with $i = 48$.

$$x = 34.755$$

(c) The mean is $\frac{1907.16}{63} = 30.272$

(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 = 30.388.

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 $x = 11.594$. This means $i = 4$. We know $n = 6$. Determine the percentile ℓ.

$$\ell = \frac{4}{6}$$

$$\ell = 0.667$$

So, the answer is 0.667, or 66.7%.

(b) We are given $\ell = 0.167$. 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.

$$i = (6)(0.167)$$

$$i = 1$$

Determine the x associated with $i = 1$.

$$x = 11.195$$

(c) The mean is $\frac{69.309}{6} = 11.5515$

(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 = 11.53.

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 $x = 23.719$. This means $i = 15$. We know $n = 40$. Determine the percentile ℓ.

$$\ell = \frac{15}{40}$$

$$\ell = 0.375$$

So, the answer is 0.375, or 37.5%.

(b) We are given $\ell = 0.5$. 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.

$$i = (40)(0.5)$$

$$i = 20$$

Determine the x associated with $i = 20$.

$$x = 24.059$$

(c) The mean is $\frac{952.628}{40} = 23.816$

(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 = 24.084.

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 $x = 24.96$. This means $i = 4$. We know $n = 8$. Determine the percentile ℓ.

$$\ell = \frac{4}{8}$$

$$\ell = 0.5$$

So, the answer is 0.5, or 50%.

(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 $i = 7$.

$$x = 27.237$$

(c) The mean is $\frac{190.156}{8} = 23.7695$

(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 = 25.285.

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 $x = 90.627$. This means $i = 49$. We know $n = 81$. Determine the percentile ℓ.

$$\ell = \frac{49}{81}$$

$$\ell = 0.605$$

So, the answer is 0.605, or 60.5%.

(b) We are given $\ell = 0.654$. 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.

$$i = (81)(0.654)$$

$$i = 53$$

Determine the x associated with $i = 53$.

$$x = 90.746$$

(c) The mean is $\frac{7343.725}{81} = 90.663$

(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 = 90.538.

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 $x = 14.507$. This means $i = 3$. We know $n = 9$. Determine the percentile ℓ.

$$\ell = \frac{3}{9}$$

$$\ell = 0.333$$

So, the answer is 0.333, or 33.3%.

(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 $i = 8$.

$$x = 15.951$$

(c) The mean is $\frac{135.582}{9} = 15.0646667$

(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 = 15.304.

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 $x = 60.956$. This means $i = 19$. We know $n = 25$. Determine the percentile ℓ.

$$\ell = \frac{19}{25}$$

$$\ell = 0.76$$

So, the answer is 0.76, or 76%.

(b) We are given $\ell = 0.04$. 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.

$$i = (25)(0.04)$$

$$i = 1$$

Determine the x associated with $i = 1$.

$$x = 50.536$$

(c) The mean is $\frac{1462.908}{25} = 58.516$

(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 = 57.891.

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 $x = 51.471$. This means $i = 4$. We know $n = 7$. Determine the percentile ℓ.

$$\ell = \frac{4}{7}$$

$$\ell = 0.571$$

So, the answer is 0.571, or 57.1%.

(b) We are given $\ell = 0.714$. 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.

$$i = (7)(0.714)$$

$$i = 5$$

Determine the x associated with $i = 5$.

$$x = 52.323$$

(c) The mean is $\frac{360.927}{7} = 51.561$

(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 = 51.471.

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 $x = 124.508$. This means $i = 34$. We know $n = 45$. Determine the percentile ℓ.

$$\ell = \frac{34}{45}$$

$$\ell = 0.756$$

So, the answer is 0.756, or 75.6%.

(b) We are given $\ell = 0.844$. 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.

$$i = (45)(0.844)$$

$$i = 38$$

Determine the x associated with $i = 38$.

$$x = 132.134$$

(c) The mean is $\frac{4946.09}{45} = 109.91$

(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 = 102.62.

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 $x = 11.229$. This means $i = 2$. We know $n = 7$. Determine the percentile ℓ.

$$\ell = \frac{2}{7}$$

$$\ell = 0.286$$

   So, the answer is 0.286, or 28.6%.

   (b) We are given $\ell = 0.714$. 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.

$$i = (7)(0.714)$$

$$i = 5$$

   Determine the x associated with $i = 5$.

$$x = 14.252$$

   (c) The mean is $\frac{88.565}{7} = 12.6521429$

   (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 = 11.452.

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 $x = 149.1$. This means $i = 7$. We know $n = 16$. Determine the percentile ℓ.

$$\ell = \frac{7}{16}$$

$$\ell = 0.438$$

So, the answer is 0.438, or 43.8%.

(b) We are given $\ell = 0.812$. 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.

$$i = (16)(0.812)$$

$$i = 13$$

Determine the x associated with $i = 13$.

$$x = 184.652$$

(c) The mean is $\frac{2538.854}{16} = 158.68$

(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 = 159.72.

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 $x = 72.886$. This means $i = 3$. We know $n = 6$. Determine the percentile ℓ.

$$\ell = \frac{3}{6}$$

$$\ell = 0.5$$

So, the answer is 0.5, or 50%.

(b) We are given $\ell = 1$. 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.

$$i = (6)(1)$$

$$i = 6$$

Determine the x associated with $i = 6$.

$$x = 74.402$$

(c) The mean is $\frac{436.955}{6} = 72.8258333$

(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 = 73.0895.

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 $x = 57.09$. This means $i = 20$. We know $n = 20$. Determine the percentile ℓ.

$$\ell = \frac{20}{20}$$

$$\ell = 1$$

So, the answer is 1, or 100%.

(b) We are given $\ell = 0.9$. 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.

$$i = (20)(0.9)$$

$$i = 18$$

Determine the x associated with $i = 18$.

$$x = 42.455$$

(c) The mean is $\frac{645.588}{20} = 32.279$

(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 = 28.204.

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 $x = 11.409$. This means $i = 3$. We know $n = 7$. Determine the percentile ℓ.

$$\ell = \frac{3}{7}$$

$$\ell = 0.429$$

So, the answer is 0.429, or 42.9%.

(b) We are given $\ell = 0.143$. 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.

$$i = (7)(0.143)$$

$$i = 1$$

Determine the x associated with $i = 1$.

$$x = 10.817$$

(c) The mean is $\frac{84.292}{7} = 12.0417143$

(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 = 11.734.

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 $x = 66.121$. This means $i = 34$. We know $n = 56$. Determine the percentile ℓ.

$$\ell = \frac{34}{56}$$

$$\ell = 0.607$$

So, the answer is 0.607, or 60.7%.

(b) We are given $\ell = 0.964$. 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.

$$i = (56)(0.964)$$

$$i = 54$$

Determine the x associated with $i = 54$.

$$x = 69.84$$

(c) The mean is $\frac{3621.662}{56} = 64.673$

(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 = 65.344.

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.

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 $x = 72.056$. This means $i = 9$. We know $n = 10$. Determine the percentile ℓ.

$$\ell = \frac{9}{10}$$

$$\ell = 0.9$$

So, the answer is 0.9, or 90%.

(b) We are given $\ell = 0.3$. 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.

$$i = (10)(0.3)$$

$$i = 3$$

Determine the x associated with $i = 3$.

$$x = 70.659$$

(c) The mean is $\frac{711.532}{10} = 71.1532$

(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 = 71.1355.

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 $x = 76.879$. This means $i = 8$. We know $n = 30$. Determine the percentile ℓ.

$$\ell = \frac{8}{30}$$

$$\ell = 0.267$$

So, the answer is 0.267, or 26.7%.

(b) We are given $\ell = 0.867$. 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.

$$i = (30)(0.867)$$

$$i = 26$$

Determine the x associated with $i = 26$.

$$x = 109.683$$

(c) The mean is $\frac{2715.67}{30} = 90.522$

(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 = 88.607.

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 $x = 138.697$. This means $i = 7$. We know $n = 7$. Determine the percentile ℓ.

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

$$\ell = 1$$

   So, the answer is 1, or 100%.

   (b) We are given $\ell = 0.571$. 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.

$$i = (7)(0.571)$$

$$i = 4$$

   Determine the x associated with $i = 4$.

$$x = 123.896$$

   (c) The mean is $\frac{838.887}{7} = 119.841$

   (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 = 123.896.

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 $x = 70.676$. This means $i = 17$. We know $n = 36$. Determine the percentile ℓ.

$$\ell = \frac{17}{36}$$

$$\ell = 0.472$$

So, the answer is 0.472, or 47.2%.

(b) We are given $\ell = 0.528$. 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.

$$i = (36)(0.528)$$

$$i = 19$$

Determine the x associated with $i = 19$.

$$x = 71.117$$

(c) The mean is $\frac{2567.494}{36} = 71.319$

(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 = 70.95.

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 $x = 94.469$. This means $i = 3$. We know $n = 6$. Determine the percentile ℓ.

$$\ell = \frac{3}{6}$$

$$\ell = 0.5$$

   So, the answer is 0.5, or 50%.

   (b) We are given $\ell = 1$. 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.

$$i = (6)(1)$$

$$i = 6$$

   Determine the x associated with $i = 6$.

$$x = 95.637$$

   (c) The mean is $\frac{567.869}{6} = 94.6448333$

   (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 = 94.5355.

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 $x = 50.622$. This means $i = 5$. We know $n = 54$. Determine the percentile ℓ.

$$\ell = \frac{5}{54}$$

$$\ell = 0.0926$$

So, the answer is 0.0926, or 9.26%.

(b) We are given $\ell = 0.944$. 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.

$$i = (54)(0.944)$$

$$i = 51$$

Determine the x associated with $i = 51$.

$$x = 62.541$$

(c) The mean is $\frac{2996.602}{54} = 55.493$

(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 = 54.698.

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 $x = 46.399$. This means $i = 6$. We know $n = 11$. Determine the percentile ℓ.

$$\ell = \frac{6}{11}$$

$$\ell = 0.545$$

So, the answer is 0.545, or 54.5%.

(b) We are given $\ell = 1$. 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.

$$i = (11)(1)$$

$$i = 11$$

Determine the x associated with $i = 11$.

$$x = 47.903$$

(c) The mean is $\frac{501.766}{11} = 45.6150909$

(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 = 46.399.

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 $x = 51.351$. This means $i = 13$. We know $n = 28$. Determine the percentile ℓ.

$$\ell = \frac{13}{28}$$

$$\ell = 0.464$$

So, the answer is 0.464, or 46.4%.

(b) We are given $\ell = 0.643$. 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.

$$i = (28)(0.643)$$

$$i = 18$$

Determine the x associated with $i = 18$.

$$x = 52.73$$

(c) The mean is $\frac{1445.092}{28} = 51.61$

(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 = 51.897.

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 $x = 30.209$. This means $i = 1$. We know $n = 10$. Determine the percentile ℓ.

$$\ell = \frac{1}{10}$$

$$\ell = 0.1$$

So, the answer is 0.1, or 10%.

(b) We are given $\ell = 0.8$. 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.

$$i = (10)(0.8)$$

$$i = 8$$

Determine the x associated with $i = 8$.

$$x = 31.674$$

(c) The mean is $\frac{317.14}{10} = 31.714$

(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 = 31.4545.

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 $x = 14.83$. This means $i = 28$. We know $n = 32$. Determine the percentile ℓ.

$$\ell = \frac{28}{32}$$

$$\ell = 0.875$$

So, the answer is 0.875, or 87.5%.

(b) We are given $\ell = 0.344$. 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.

$$i = (32)(0.344)$$

$$i = 11$$

Determine the x associated with $i = 11$.

$$x = 10.754$$

(c) The mean is $\frac{394.054}{32} = 12.314$

(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 = 12.268.

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 $x = 21.937$. This means $i = 3$. We know $n = 6$. Determine the percentile ℓ.

$$\ell = \frac{3}{6}$$

$$\ell = 0.5$$

So, the answer is 0.5, or 50%.

(b) We are given $\ell = 0.167$. 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.

$$i = (6)(0.167)$$

$$i = 1$$

Determine the x associated with $i = 1$.

$$x = 20.953$$

(c) The mean is $\frac{132.252}{6} = 22.042$

(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 = 22.0775.

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 $x = 11.757$. This means $i = 5$. We know $n = 28$. Determine the percentile ℓ.

$$\ell = \frac{5}{28}$$

$$\ell = 0.179$$

So, the answer is 0.179, or 17.9%.

(b) We are given $\ell = 0.429$. 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.

$$i = (28)(0.429)$$

$$i = 12$$

Determine the x associated with $i = 12$.

$$x = 13.673$$

(c) The mean is $\frac{448.395}{28} = 16.014$

(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 = 15.009.

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 $x = 22.017$. This means $i = 11$. We know $n = 11$. Determine the percentile ℓ.

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

$$\ell = 1$$

So, the answer is 1, or 100%.

(b) We are given $\ell = 0.364$. 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.

$$i = (11)(0.364)$$

$$i = 4$$

Determine the x associated with $i = 4$.

$$x = 21.364$$

(c) The mean is $\frac{236.519}{11} = 21.5017273$

(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 = 21.463.

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 $x = 41.753$. This means $i = 35$. We know $n = 40$. Determine the percentile ℓ.

$$\ell = \frac{35}{40}$$

$$\ell = 0.875$$

So, the answer is 0.875, or 87.5%.

(b) We are given $\ell = 0.3$. 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.

$$i = (40)(0.3)$$
$$i = 12$$

Determine the x associated with $i = 12$.

$$x = 41.357$$

(c) The mean is $\frac{1658.932}{40} = 41.473$

(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 = 41.469.

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.