1. (a) $32.5 - 6.77 = 25.73$
(b) $4\frac{3}{7} \div 5\frac{16}{17} = \frac{527}{307} \approx 0.75$
(c) $\frac{33}{5} - 2\frac{1}{7} = \frac{525}{35} = \frac{105}{7} = 15$
(d) 24% of 433 is $0.24 \cdot 433 = 103.92$
(e) 32.6% is the same as $0.326$
(f) 18 is 450% of 4

2. Using the calculator to get a decimal expansion, $\frac{1}{3} \approx 0.33 < \frac{11}{14} \approx 0.79 < \frac{44}{55} = 0.8$

3. After a chef’s tasting, the 74 guests were polled about their favorite menu items. Draw a circle graph to represent the data shown; be sure to label each wedge of the circle with the number of guests, not the percentage.

4. Using the calculator stat functions:

(a) mean = $\bar{x}$ | 84.81
(b) median | 86.5
(c) mode | 88
(d) standard deviation = $sx$ | 10.16
(e) % uncertainty = $\frac{sx}{\bar{x}} \cdot 100 \approx 11.98$

5. We rewrite the normal distribution chart as below, substituting 7 for the mean, and using .5 as $sx$ to get the remaining values:

(a) 95% of the snails were between 6 and 8 millimeters wide.
(b) 50% of the snails had shells wider than 7 millimeters.
(c) 2.5% + 13.5%, or 16%, of the snails had shells smaller than 6.5 millimeters wide.
6. Using your calculator, you can find that grandma Claire spends \( \frac{200}{33} \approx 6.06 \) per cat, while grandma Rose spends \( \frac{150}{26} \approx 5.76 \) per cat, meaning that Claire spends more per cat.

7. Sketch a triangle with side lengths 3, 4, and 5 centimeters. Draw the triangle on your answer sheet, and then measure and label each of the angles.

![Triangle with side lengths 3, 4, and 5 cm]

8. The area will be the area of the circular piece of dough \( (A = \pi r^2 = \pi \cdot (8)^2 = 64\pi) \), minus the area of each cookie (10 of them at an area of \( \pi \) sq.in. each, for a total of 10\( \pi \)). Thus the final answer will be \( 64\pi - 10\pi = 54\pi \approx 169.65 \) sq.in.

9. The surface area is given by the formula \( 2B + Ph \), where \( B \) is the area of the base, \( P \) is the perimeter of the base, and \( h \) is the height of the prism. Each of the bases is a triangle with area \( B = \frac{1}{2} \cdot 6 \cdot 8 = 24 \), and perimeter \( P = 6 + 8 + 10 = 24 \). Thus the surface area is \( 2 \cdot 24 + 24 \cdot 13 = 360 \).

The volume is given by the formula \( V = Bh \), so equal to \( 24 \cdot 13 = 312 \).

10. A boxplot for the data would look like the below picture, which gives a clear indication that the data is clustered close to the median in Distribution I, and not as much in Distribution II. As such, we expect both the standard deviation, and the percent uncertainty, to be higher in Distribution II.

![Boxplot with median at 45, 48, 50, 52, 60]

11. (a) \( 3x - 7 = 2x + 1 \) First rewrite as \( (3x - 2x) = (1 - (-7)) \) and combine terms to see \( x = 8 \).

(b) \( x^2 + 4x + 4 = 0 \): Graph \( y = x^2 + 4x + 4 \) and use the solver to get \( x = -2 \).

(c) \( x^2 + 10 = 9 \): Graph \( y = x^2 + 1 \) to see that the line never touches the x-axis, so no solution.