

UNIT 2: PROBABILITY

PREREQUISITE SKILLS

Learning goals

- review work with fractions
- review with graphs

Change to a decimal

* watch for proper rounding

$$\begin{array}{l} 3 \\ \hline 5 \end{array} = 3 \div 5 \\ \div \quad = 0.6$$

$$\begin{array}{l} 7 \\ \hline 9 \end{array} = 7 \div 9 \\ = 0.777777\dots \\ = 0.\overline{7} \leftarrow \begin{array}{l} \text{repeats} \\ \text{forever} \end{array}$$

OR
= 0.778

Change to a fraction

$$0.75 = \frac{75}{100} = \frac{75 \div 25}{100 \div 25} = \frac{3}{4}$$

↑ 10th ↑ 100th

$$0.657 = \frac{657}{1000}$$

↑ 1000th

$$\overline{0.33} = \frac{33}{100-1} = \frac{33}{99} = \frac{1}{3}$$

← repeater

↑ 100th

← repeater

Change to a fraction

$$20\% = \frac{20}{100} = \frac{1}{5}$$

↑ 100

$$42\% = \frac{42 \div 2}{100 \div 2} = \frac{21}{50}$$

Change to a percent

$$\frac{75}{100} = 0.75 = 75\%$$

$$0.52 = 52\%$$

(A red arrow points from the 0.75 to the 75% with the label "x100")

$$\frac{39}{42} = 0.93 = 93\%$$

$$0.39 = 39\%$$

$$\frac{69}{80} = 0.86 = 86\%$$

$$1.02 = 102\%$$

(A red arrow points from the 1.02 to the 102% with the label "x100")

Evaluate

$$\frac{2}{5} + \frac{3}{5}$$

$$= \frac{2+3}{5}$$

$$= \frac{5}{5} = 1$$

$$1 - \frac{2}{9}$$

$$= \frac{1}{1} - \frac{2}{9}$$

$$= \frac{9-2}{9}$$

$$= \frac{7}{9}$$

$$\frac{2}{5} + \frac{3}{7}$$

$$= \frac{14+15}{35}$$

$$= \frac{29}{35}$$

(Red arrows show 2/5 multiplied by 7 to get 14/35 and 3/7 multiplied by 5 to get 15/35. Blue arrows show the addition of 14 and 15 to get 29/35.)

Steps

1. Common "bottom"
2. Adjust "top"
3. Add/Subtract

Evaluate

$$\frac{3}{5} \left(\frac{2}{7} \right)$$

$$= \frac{6}{35}$$

$$\left(3 \frac{1}{4} \right) \left(\frac{2}{5} \right)$$

$3(4) + 1$

$$= \left(\frac{13}{4} \right) \left(\frac{2}{5} \right)$$

$$= \frac{26 \div 2}{20 \div 2} = \frac{13}{10}$$

Steps

1. Top with top.
2. Bottom with bottom.
3. Reduce

Evaluate

$$\frac{3}{5} \div \frac{4}{7}$$

$$= \frac{3}{5} \times \frac{7}{4}$$

$$= \frac{21}{20}$$

$$\frac{7}{5} \div \frac{1}{4}$$

$$= \frac{7}{5} \times \frac{4}{1}$$

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

Steps

1. Keep the first fraction.
2. Change \div to \times .
3. Flip the second fraction
4. Multiply

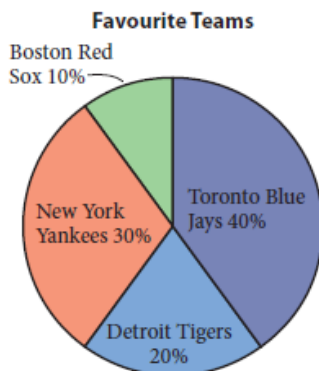
Calculating "percent of":

$$35\% \text{ of } 120 = 0.35 \times 120 = 42$$

$\div 100$

$$5\% \text{ of } 3000 = 0.05 \times 3000 = 150$$

9. Two hundred people were surveyed. The results are shown in the graph.



- a) Of the people surveyed, how many prefer the Boston Red Sox?
- b) What fraction of the people surveyed prefer the Toronto Blue Jays?
- c) What percent of the people surveyed prefer the Blue Jays or the New York Yankees?

$$10\% \text{ of } 200 = 0.10(200) = 20$$

$$40\% = \frac{40}{100} = \frac{4}{10} = \frac{2}{5}$$

$$40\% + 30\% = 70\%$$

Change to a decimal

On the Boards...

$$\frac{96}{100} = 0.96$$

$$\frac{5}{8} = 0.625$$

Change to a fraction

$$0.02 = \frac{2}{100} = \frac{1}{50}$$

$$0.2 = \frac{2}{10} = \frac{1}{5}$$

$$0.\overline{251} = \frac{251}{999}$$

Change to a fraction

$$14\% = \frac{14}{100}$$

$$= \frac{7}{50}$$

$$56\% = \frac{56}{100}$$

$$= \frac{14}{25}$$

Change to a percent

$$\frac{3}{5} = 0.6$$

$$= 60\%$$

$$\frac{7}{9} = 0.777$$

$$= 78\%$$

Evaluate

$$\frac{7}{9} + \frac{5}{4} = \frac{28 + 45}{36}$$

$$= \frac{73}{36}$$

$$2\frac{1}{2} - \frac{1}{3} = \frac{5}{2} - \frac{1}{3}$$

$$= \frac{15 - 2}{6}$$

$$= \frac{13}{6}$$

$$\frac{4}{9} \left(\frac{3}{4}\right) = \frac{12}{36}$$

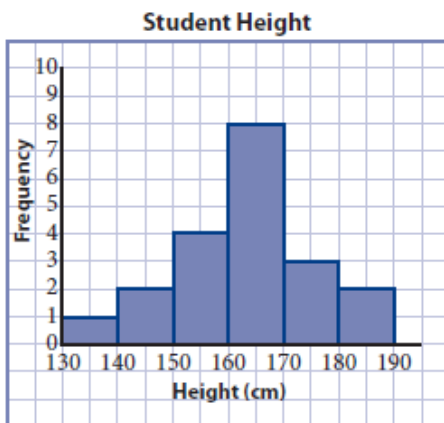
$$= \frac{1}{3}$$

$$\frac{5}{7} \div \frac{2}{3}$$

$$= \frac{5}{7} \left(\frac{3}{2}\right)$$

$$= \frac{15}{14}$$

10. The histogram shows the heights of the students in Mr. Lee's math class.



$$1 + 2 + 4 + 8 + 3 + 2$$

$$= 20$$

a) How many students are in the class?

b) How many students are between 160 cm and 170 cm tall?

8

c) What percent of students are shorter than 160 cm?

$$\frac{7}{20} = 35\%$$

d) What fraction of students are taller than 150 cm?

$$\frac{17}{20}$$

Homework

Handout

Pg. 58 # 1-8