

get handout 1 → lesson 4

Lesson 4: Converting/Solving and Representing a Distribution w a Circle Graph

(Pie Chart)

Recall: Convert the following to hours and minutes:

1.8 hours
 integer → decimal

1 hr and 0.8 of an hour
 80% of an hour
 80% of 60 mins
 $0.8 \times 60 \text{ mins} = 48 \text{ mins}$

1 hr and 48 mins
 $48 \text{ mins} = 0.8 \text{ hrs}$

1.8 hour
 1 hr and 0.8 hour
 $\frac{0.8 \text{ hrs}}{1 \text{ hr}} = \frac{x \text{ min}}{60 \text{ mins}}$
 step i. unknown equivalent equation
 step ii. conversion rate equation
 $\left(\frac{0.8}{1}\right)^{60} = \left(\frac{x}{60}\right)^{60}$

$48 \text{ min} = x$
 $60 \text{ mins} = 1 \text{ hr}$
 step iii. same units under same unit and solve
 for x w opposite operation

1.8 hrs =
 1 hr and 48 min

$\frac{\circ}{\circ} \leftrightarrow \times$
 $+$ \leftrightarrow $-$

Question 2: Convert to minutes

$\frac{1}{4}$ \rightarrow $\frac{1}{4}$ of an hour

0.25 of an hour

$$0.25 \times 60$$

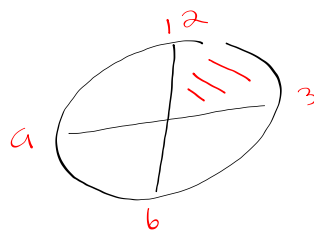
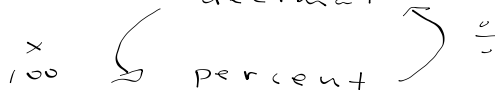
15 mins

$1 \frac{0}{4}$

fraction

decimal

percent



$$60 \times \frac{0.25 \text{ hr}}{1 \text{ hr}} = \left(\frac{x \text{ min}}{60 \text{ min}} \right) \cdot 60$$

$$15 \text{ mins} = x$$

PART B: REPRESENTING A DISTRIBUTION WITH A PIE CHART/CIRCLE GRAPH

Question 1:

a) Construct a pie chart to represent Loto-Quebec's Different Sources of Revenue

Loto-Quebec's Different Sources of Revenue

SOURCE OF REVENUE	AMOUNT (IN MILLIONS OF DOLLARS)	PERCENTAGE (%)	CENTRAL ANGLE
Lotteries	641	47.8%	172°
Casinos	329	24.5%	88°
Video lotteries	360	26.8%	96.5°
Bingo	11	0.8%	3°
TOTAL	1341	≈ 100% (okay 99.9%)	≈ 360° (okay 359.5°)

Variable = x

steps to make circle graph:

step i. create % column and find % (and total row)

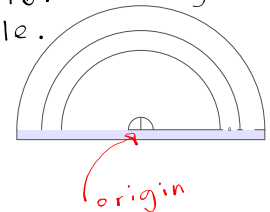
$$\% = \frac{\text{part}}{\text{total}} \times 100\%$$

step ii. construct central angle column, and convert each % to central angle.

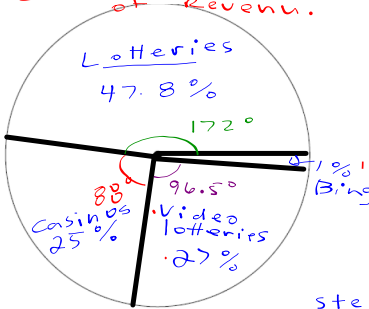
(x each % by 3.6)

step iii. draw a radius pointing East

step iv. put origin of protractor at origin of circle.



Loto-Quebec Sources of Revenue



converting: degrees (unit of central angle)

$$\frac{360^\circ \times 47.8\%}{100\%} = \left(\frac{x}{360}\right) \times 360$$

$$\text{Bingo } 3.6 \times 0.8\% = x$$

$$172^\circ = x$$

step vi. Tick is new initial side. Put 0° of protractor there and repeat.

step v. Note 0° and go all the way to given angle (172°). Put tick and draw line from origin.

b) Your friend claims that Bingo, Casinos, and Video lotteries all individually represent less than a 1/4 of Loto-Quebec's Net Income. Referring to your circle graph, determine if this is true.

False $\frac{1}{4} = 0.25 = 25\%$
because V.L. rep. more than $\frac{1}{4}$ (25%) of revenue.

Finish handout 2

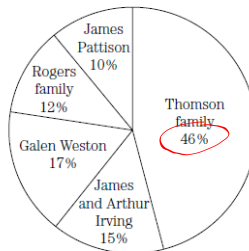
Practise interpreting data (important for tasks)

5 Graphically Representing Statistical Distributions

5.1 a)

THE FIVE LARGEST CANADIAN FORTUNES OF 2010

RANK	NET WORTH (BILLIONS)	PERCENTAGE (%)	CENTRAL ANGLE
1	23.4	46	166°
2	8.5	17	61°
3	7.5	15	54°
4	6.0	12	43°
5	5.0	10	36°
Total	50.9	100	360°



Your friend is wrong
46% less than $\frac{1}{2}$.

$$\frac{1}{2} = 0.5 = 50\%$$

b) Your friend claims the Thomson family's net worth represents more than half of Canada's largest fortunes in 2010. Refer to your circle graph to determine if true.