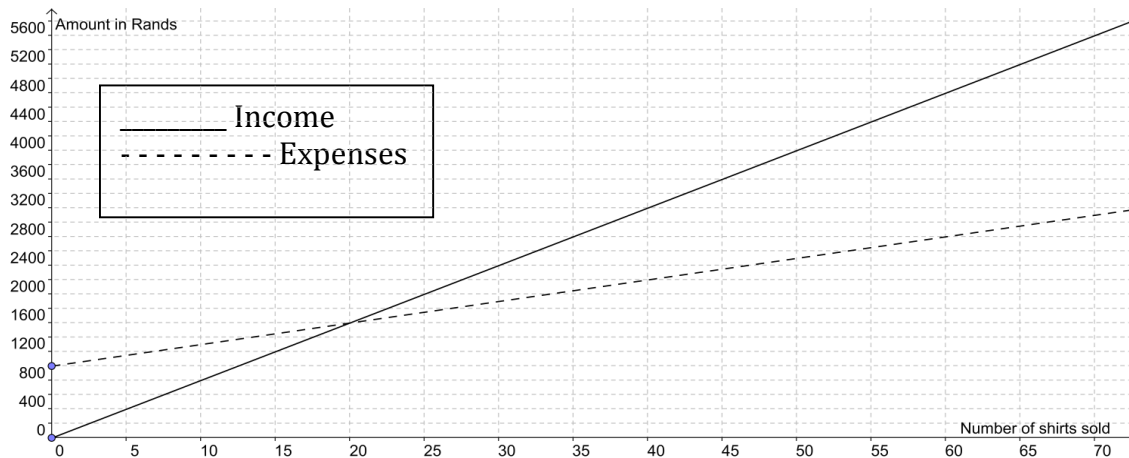


# SHARP

## Mathematical Literacy – Grade 11

### Worksheet 1 MEMO – Patterns, Relationships and Representations

1. a)  $Income = 80x$   
b)  $Expenses = 30x + 1000$   
c)



d) 20 shirts, R1600 is the break – even point of the graph

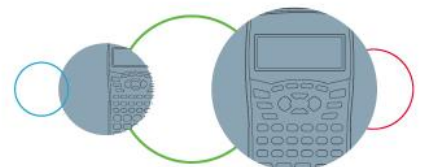
e)  $Cost\ in\ CAD = R\ 30 \div 8.88$   
 $= \$\ 3.38\ per\ T - shirt$

f)  $R\ 80 \div 8.88 = \$\ 9.01$   
 $\therefore \$\ 9.01 - \$\ 3.38 = \$\ 5.63\ profit\ is\ made\ per\ T - shirt$

g)  $at\ \$\ 9.00 - \$\ 3.38 = \$\ 5.62\ profit\ is\ made\ per\ T - shirt$

So this is a very good thing for Mr McCarthy. He would have made  
( $\$5.62 \times 8.88 = R49.91$ ) R 49.91 profit per shirt. Which is a total of  
( $R49.91 \times 300 = R14\ 973$ ) R 14 973 profit. He will now make  
( $\$5.62 \times 10.30 = R57.89$ ) R 57.89 per shirt which is a total of  
( $R57.89 \times 300 = R\ 17\ 367$ ) R 17 367 profit on this deal

2. a)  $maximim = 2\ 288\ people$  in March  
b)  $maximum = 2\ 760\ people$  in February  
c) Theatre B is more popular because more people go to theatre B than theatre A. (Highest average attendance)



$$d) \frac{1760+1100+836+2200+2288+2068}{6} = \frac{10\,252}{6} = 1708.7$$

$\therefore$  on average 1709 people visit theatre A per month

Number is rounded off because you can't have 0.7 people

3. a) The company runs on fixed costs, they spend the same amount of money every month regardless of how many chocolates they produce.

b) *Profit/Loss = Income - expenditure*

$$Profit = R\,60\,000 - R\,100\,000 = -R\,40\,000$$

$\therefore$  They will lose R 40 000.

c) The break-even point is (20 000, 100 000)

d) Straight line graph:

$$y = mx + c$$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$c = 0$$

$$m = \frac{100\,000 - 0}{20\,000 - 0}$$

Formula for income is  $\therefore y = 5x$

$$m = 5$$

e)  $y = 5x$

$$y = 5(78\,000)$$

$$y = 390\,000$$

$\therefore$  R 390 000 income comes in if they sell 78 000 chocolates

f) *Profit = Income - Expenditure*

$$Profit = R\,120\,000 - R\,100\,000$$

$$Profit = R\,20\,000$$

4. a)

<b>OPTION 1</b> 300 SMS - 100 free = $200 \times R\,0.77 = R154$ 1000 MB - 500 MB = $500\,MB \times R\,0.10 = R\,50$ Cost = $R\,249.90 + R\,154 + R\,50 = R\,453.90$	<b>OPTION 2</b> 300 SMS - 150 free = $150 \times R\,1.20 = R180$ 1000 MB - 700 MB = $300\,MB \times R\,0.09 = R\,27.00$ Cost = $R\,339.00 + R\,180 + R\,27.00 = R\,546.0$
<b>OPTION 3</b> 300 SMS - 500 free = $-200 \therefore R\,0$ 1000 MB - 2000 MB = $-1000\,MB \therefore R\,0$ Cost = $R\,550.00 + R\,0 + R\,0 = R\,550.00$	<b>OPTION 4</b> 300 SMS - 200 free = $100 \times R\,0.75 = R\,75$ 1000 MB - 10000 MB = $0\,MB \therefore R\,0$ Cost = $R\,345.00 + R\,75 + R\,0 = R\,420.00$

b) He should choose Option 4 as the monthly payments would be the lowest.

c) **OPTION 3** - 450 SMS - 500 free =  $-50 \therefore R\,0$

$$3200\,MB - 2000\,MB = 1200\,MB \times R\,0.20 = R\,240$$

$$20\,mins\,calls - 50\,mins\,calls = -30\,mins \therefore R\,0$$

Cost =  $R\,550.00 + R\,0 + R\,240 + R\,0 = R\,790.00 \therefore$  He would pay R 790.00 in that month

