Numeracy for Edexcel GCSE Business

1. Adding Value

Creating "value" allow businesses to charge a higher price than the cost of production – a packet of Walkers crisps costs about 4p to make. They can sell for 50p so 46p of value has been added

(the difference between the cost of materials/production and the selling price = added value)

How can this happen?
1. Convenience and/or speed for consumers
2. Good design
3. High quality
4. Brand name
5. Unique selling point

Task
Select a product or service and analyse how it adds value using these 5 points

a. Jacob has calculated that the cost of every plate of food he prepares is approximately 98p and the average selling price is £9.99. Calculate the added value Jake has achieved for each dish.

b. Jack buys stocks of jam from a wholesaler at 46p per jar. In using it to serve cream teas, Jack estimates that it contributes £3.70 per jar of revenue. Calculate the added value per jar.

c. Kara makes celebration cakes for a living, the average cakes costs £15.50 to make and the average selling price is £48.00. What value does Kara add to her cakes?

2. Revenue, variable costs, fixed costs and profit

a. Elizabeth sells 50 boxes of chocolates at £5.99 in December due to the Christmas rush but only sells 14 boxes in January because she has to put her price down to £3.99 to sell what is left before the Valentines Day style inventory arrive. What is Elizabeth's total revenue for December and January?

b. Table 1 contains information about a small business for one month. The business sold 275 units in this month

Fixed costs	£7800
Variable costs (per unit)	£8

Using the information in table 1, calculate the total costs for the month. You are advised to show your workings

£_____

c. Table 2 contains information about a small business for one month. The business sold 520 units in this month

Fixed costs	£83,500
Variable costs (per unit)	£15

Using the information in table 2, calculate the total costs for the month. You are advised to show your workings

£_____

d. Table 3 contains information about a small business for one month. The business sold 380 units in this month

Fixed costs	£4,300
Variable costs (per unit)	£5
Selling price	£19

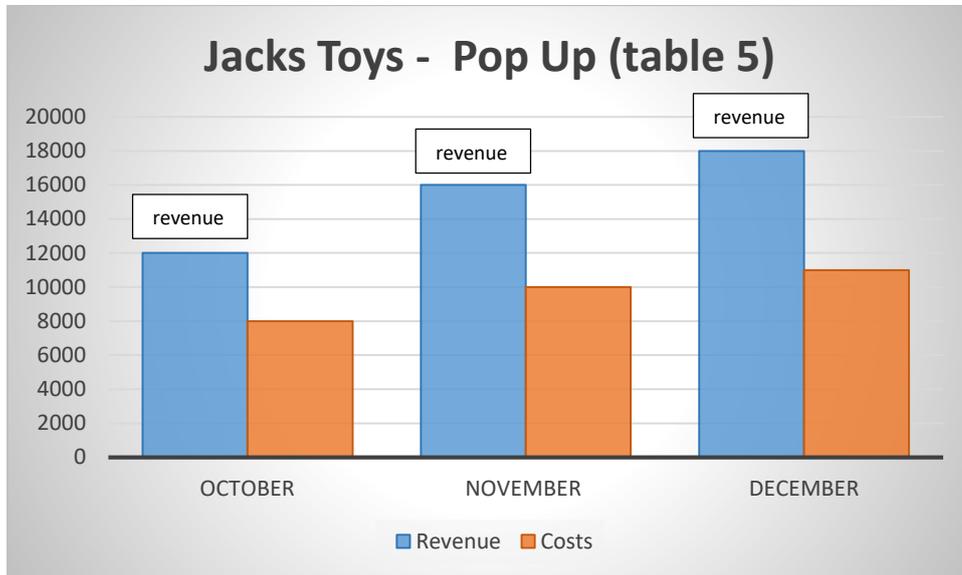Using the information in table 1, calculate the total Profit for the month. You are advised to show your workings

£_____

e. My total revenue is £18,000 and my costs represent 40% of my revenue. How much is my profit?

f. The total revenue for my business is £120,000 and my costs are 65% of my revenue. How much profit do I make?

g. The revenue for my business is £17,986 and I sold 2,300 items. How much did I charge for each item?

h. Complete the following table (table 4)

	Example 1	Example 2	Example 3	Example 4	Example 5
Revenue	£20,000		£37,000		£26,700
Costs	£12,350	£8,500		£36,000	£17,900
Profit/loss		£3,000	£14,000	£15,700	

i. Figure 5 shows information about the financial performance of a business from October to December.

Revenue and costs from October to December

Jacks Toys - Pop Up (table 5)

- Using the information in the graph, calculate the total profit from October to December. You are advised to show your workings.

£_____

j. Sarah's Celebration Cakes has the following information for the month of March (table 6) :

	April
Raw materials per cake	£5.20
Packaging per cake	£1.50
Fixed costs	£3000
Selling price per cake	£35
Sales volume	160

- Calculate the total revenue for the month of April

£_____

- Calculate the total variable costs for the month of April

£_____

- Calculate the profit for the month of April

£_____

k. Sarah's variable cost per cake increases by £2.00 but she can only increase her price by £1.00 to stay competitive. Calculate her new level of profit for April.

£_____

3. Interest on loans

a. Bob has decided to take out a loan for the capital required to purchase the resources for his business. He will be paying 4.5% interest on a loan of £65,000 for a period of 5 years. How much will be pay each year in interest?

£_____

b. Lulu has decided to take out a loan for the capital required to purchase the resources for her business. She will be paying 2.7% interest on a loan of £45,000 for a period of 3 years. How much will be pay in total in interest?

£_____

c. Maggie has decided to take out a loan for the capital required to purchase a van for her business. She will be paying 2.7% interest on a loan of £8,000 for a period of 2 years. How much will be pay in total in interest?

£_____

4. **Break even and margin of safety**

a. Write the equation for break even here in this box

B. Using table 6 for Sarah's celebration cakes, calculate the break even point. You should show your workings and round to the nearest **whole** cake! (round down and you don't break even)

	March
Raw materials per cake	£5.20
Packaging per cake	£1.50
Fixed costs	£3000
Selling price per cake	£35
Sales volume	160

Units _____

C. Calculate the margin of safety for Sarah's cakes during March

Units _____

D. In April, suppliers increase the cost of raw materials per cake by 6%. Calculate the variable cost per cake after the change.

£ _____

E. Using table 7 for Fred's belt making business, calculate the break even point. You should show your workings and round to the nearest **whole** belt!

Table 7	June
Raw materials belt	£8.40
Packaging per belt	80p
Fixed costs	£8000
Selling price per belt	£29
Sales volume	620

You are advised to show your workings

Units _____
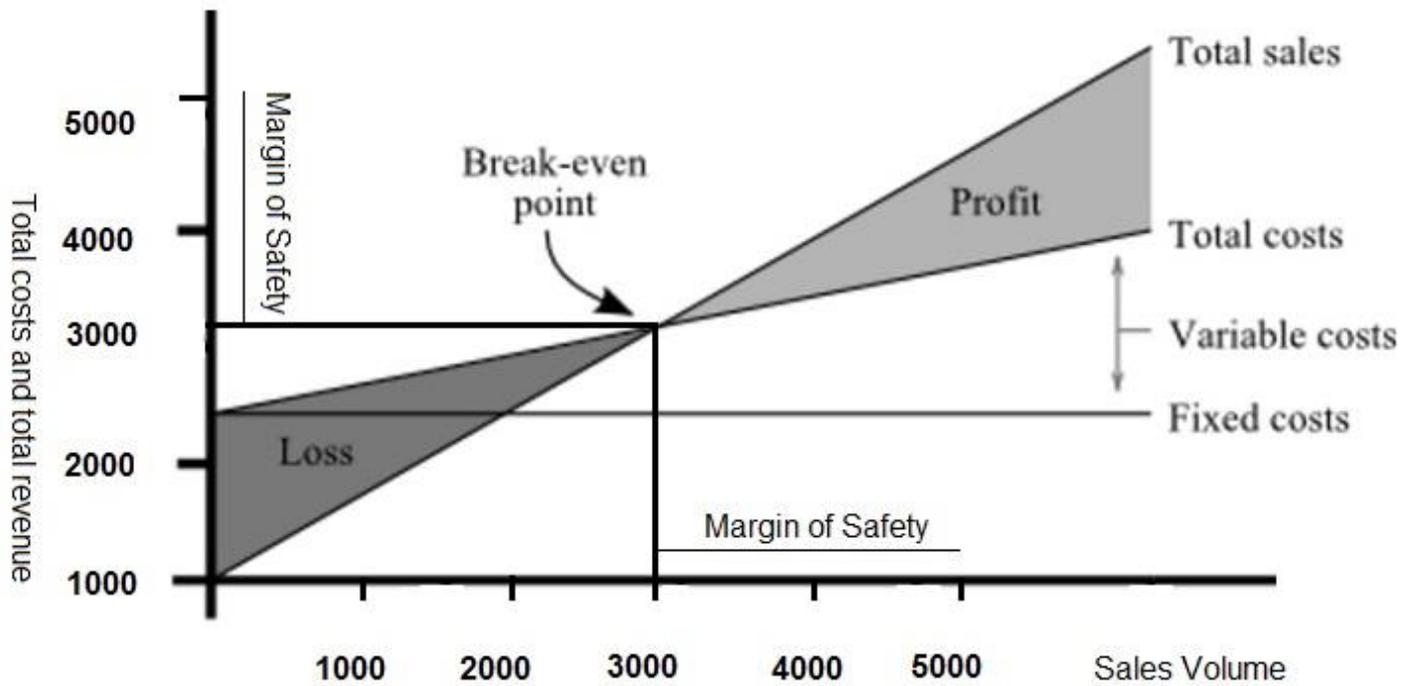
F. Calculate the margin of safety for Fred's Belts Ltd during June

Units _____

G. In April, suppliers increase the cost of packaging per belt by 10%. Calculate the variable cost per belt after the change.

£ _____

H.

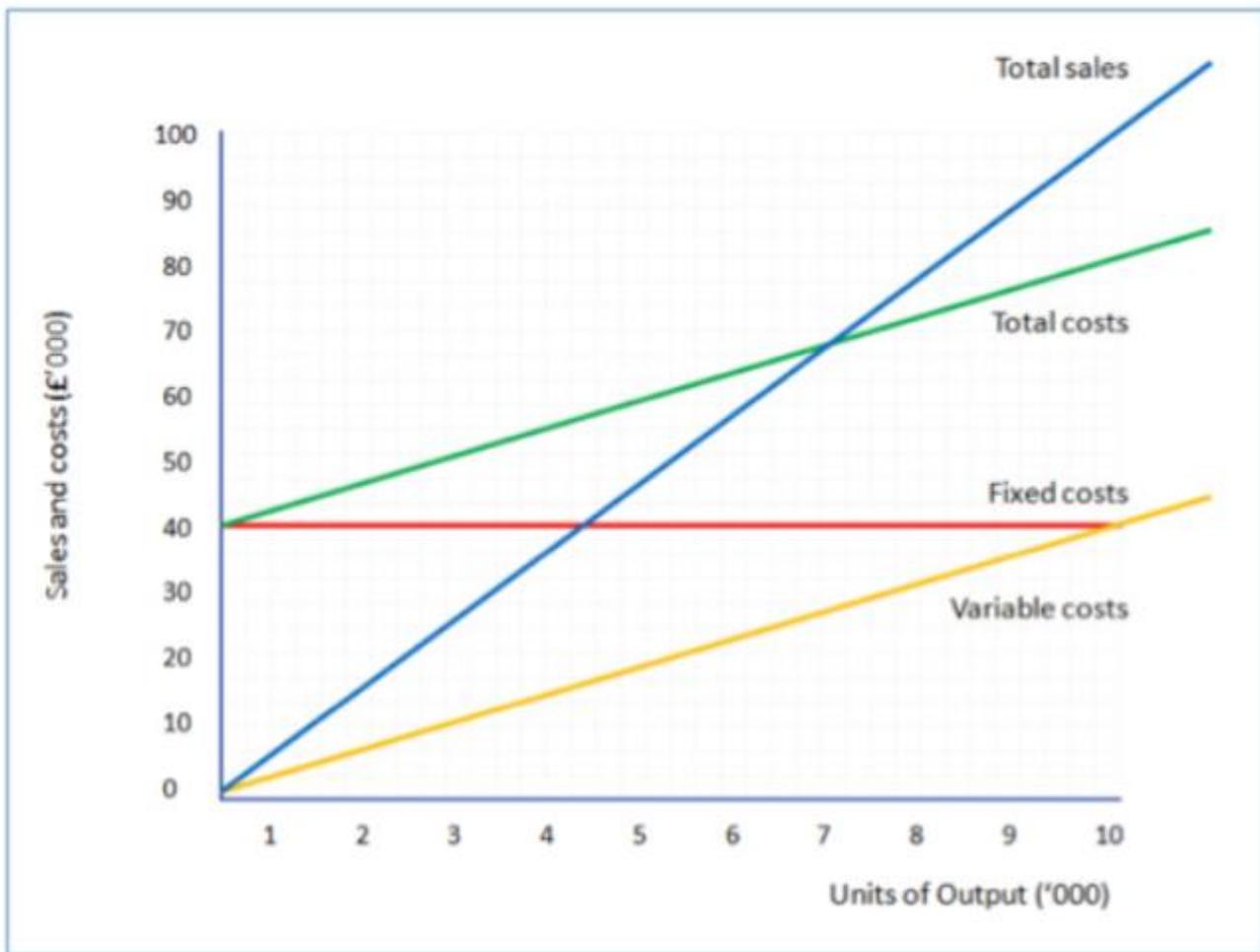
- How many units must this business sells to break even?

Units _____

- Calculate the margin of safety

Units _____

- If the total revenue line is above the total cost line, does the business make a profit or loss?

J. Interpreting break even charts

- Label the break even point

- How many units must be produced and sold to break even?

- Label the area which shows profit

- Label the area where the business would be making a loss

- What are the fixed costs per year?

- If the business sold 10,000 units, what would be the margin of safety?

5. What if break even calculations

Greg owns a company manufacturing components for motor vehicles. For component A he has gathered the following information in table 8:

Table 8	October
Raw materials per component A	£3.20
Direct labour per component A	80p
Fixed costs allocated per Component A	£8000
Selling price per Component A	£9
Sales volume	6620

A. Calculate the break even point for component A in October

Units _____

B. Calculate the margin of safety for Component A

Units _____

C. Greg discovers that cost will rise in November. The minimum wage increase means that labour per component will increase by 5p and the cost of raw materials by 20p. The selling price and fixed cost remain the same. Recalculate the units required to break even
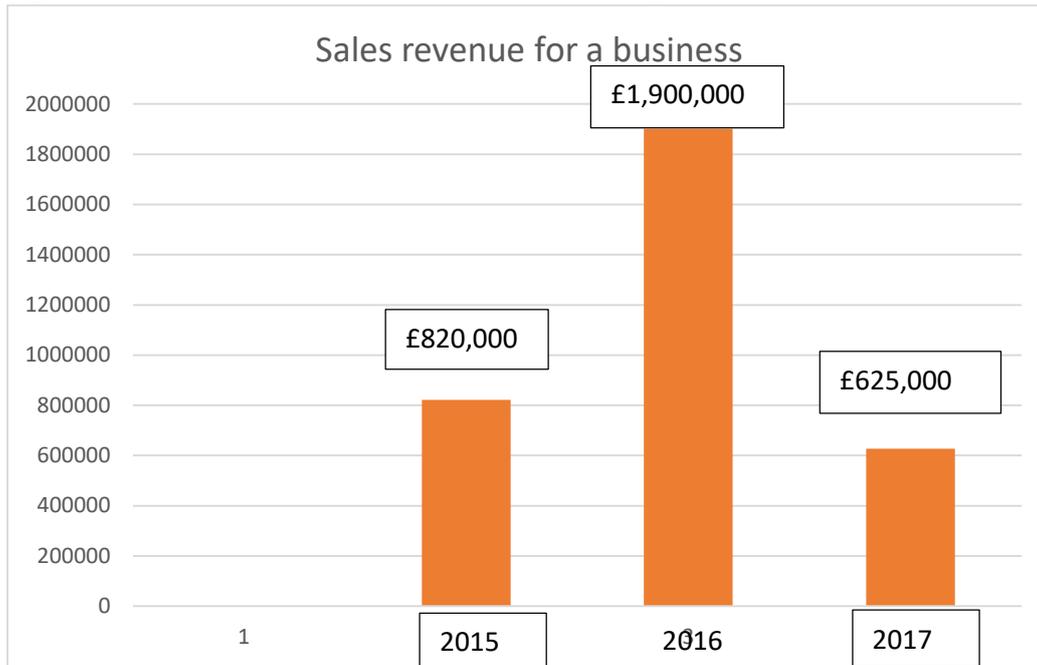
Units _____

You are advised to show your workings

6. % increases/decreases

- Find the difference
- Divide by the original
- X 100
- = ?%

Figure 9 shows sales revenue for a business for 3 years

Sales revenue for a business

Year	Revenue
2015	£820,000
2016	£1,900,000
2017	£625,000

a. Using the information in figure 9, calculate the % increase in sales revenue between the years 2015 & 2016 (give your answer to two decimal places)

% _____

b. Using the information in figure 9, calculate the % decrease in sales revenue between the years 2016 & 2017 (give your answer to two decimal places)

% _____

Josh is concerned about the impact on Brexit on his predicted future profits. He has predicted that costs will rise due to import duties and has created some estimates of future profits detailed in figure 10

Month 2020	Predicted profit
March	£6,800
April	£4,300
May	£5,200
June	£6,100

D. Using the information in figure 10, calculate the % decrease in profit between the years March and April (give your answer to two decimal places)

% _____

E. Using the information in figure 10, calculate the % increase in profit between the years May and June (give your answer to two decimal places)

% _____

6. Currency Exchange

£ to other currency = multiply

Other currency to £ = divide

Imports = want a strong £ as imports cheaper

Exports = want a weak £ as exports are more affordable for other countries

a. Calculate how much a product priced at £39 would cost in US dollars, if the rate of exchange was £1 = $1.27. You are advised to show your workings.

$ _____

b. Calculate how much a product priced at £56 would cost in euros, if the rate of exchange was £1 = €1.09. You are advised to show your workings.

€
_____

c. Hatty wants to buy a product on Amazon.fr but she need to pay in euros. Her bank advises her the current rate of exchange is €1.11 to the £. The item costs €123 so how much will this be in £s? You are advised to show your workings.

£_____

d. Table 12 shows the value of the £ against the euro from January to May.

Month	Number of euros € to the £
January	1.15
February	1.13
March	1.11
April	1.10
May	1.14

F. Identify, from table 12, which month is the best for a business to import raw materials from Paris?

e. Using table 12, calculate the amount of £ required to fulfil an order for raw materials from Paris in March if the order is estimated to be £3870. You are advised to show your workings

£ _____

7. Cashflow forecasts

> Sufficient cash = solvency
>
> **Amount AND timing** of cash inflow impact on potential cash shortfalls
>
> Increase cash inflow – sell more, overdraft
>
> Decrease cash outflow – delay payments, cut costs, trade credit
>
> Method:
>
> Add up all cash inflow = total receipts
>
> Add up all cash outflows = total payments
>
> In – out = net cashflow
>
> Opening balance, pay in net cashflow = closing balance. Transpose closing to opening balance for the next time period

a. Complete table 13

	Jan	**Feb**
Sales revenue	5,000	7,000
Owners investment	5,000	0
Receipts (total cash inflow)	A	E
Raw materials	2,000	3,000
Fixed costs	1,000	1,000
Total payments (total cash outflow)	B	F
Net cashflow	C	G
Opening balance	0	H
Closing balance	D	I

b. Complete table 14

	Jan	Feb
Receipts (total cash inflow)	55,000	45,000
Raw materials	30,000	25,000
Fixed costs	10,000	10,000
Total payments (total cash outflow)	A	D
Net cashflow	B	E
Opening balance	<9,000>	F
Closing balance	C	G

c. Complete table 15.

	Jan	Feb
Receipts (total cash inflow)	4,000	4500
Raw materials	1,000	1100
Fixed costs	A	2000
Total payments (total cash outflow)	3,000	D
Net cashflow	B	E
Opening balance	1500	F
Closing balance	C	G

d. Table 16 below shows the cash-flow forecast for a small business.

Complete the table with the **two** missing figures.

	April (£)	May (£)
Receipts	12 700	13 460
Raw materials	6 030	5 380
Rent	1 540	1 540
Total payments	7 570	6 920
Net cash flow	(i)	6 540
Opening balance	4 700	9 830
Closing balance	9 830	(ii)

8. Income statements (profit and loss accounts) & Performance ratios

Income statement

Sales revenue
-cost of sales
= gross profit
-expenses/overheads
=net profit

Ratios

- The always look at proportions measured in %
- The % of sales that actually ends up at gross profit
- The % of sales that ends up as net profit

Gross profit margin = $\dfrac{\text{gross profit}}{\text{sales}} \times 100 =$ %

Net profit margin = $\dfrac{\text{net profit}}{\text{sales}} \times 100 =$ %

a. Complete table 17 to find create the income statement and then calculate the gross and net profit margin for each business. **(give your answer to two decimal places for the net and gross profit margin**)

	A	B	C	D	E	F
Sales	£24,600	£246,720			£67,990	
Minus Cost of sales		£103,475	£38,900	£102,900		£12,355
= Gross profit	£12,420		£21,300	£58,120	£19,320	£4,290
Minus expenses	£5,370	£67,250	£14,200		£14,975	
= Net profit				£17,520		£1,520
Gross profit margin						
Net profit margin						

Which business is the most efficient at generating net profit from their revenue?

b. Table 18 contains information about Busy Bees performance in 2018.

Sales Revenue	£120,750
Gross Profit	£63,990
Other operating expenses and interest	£31,410

c. Using the information above in table 18, calculate Busy Bees cost of sales. You are advised to show your workings

£ _____

d. Using the information in table 18, calculate to 2 decimal places, Busy Bees gross profit margin. You are advised to show your workings

£ _____

e. Using the information in table 18, calculate Busy Bees net profit. You are advised to show your workings

£ _____

f. Using the information in table 18, calculate to 2 decimal places, Busy Bees net profit margin. You are advised to show your workings

£ _____

9. <u>Average rate of Return</u>

- Calculate the % return on an investment/project/piece of equipment
- Done by comparing the annual profit anticipated against the capital set up cost of a project/machine
- Average annual profit ÷ Capital investment x 100 = %
- Can compare rate of return to interest on deposit in a bank or another investment or project

1. Table 19 contains information about a new piece of machinery that a business wants to purchase. (give your answer to two decimal places)

Average Annual Profit	£60,000
Cost of new Machine	£450,000

Using the information in Table 19, calculate the average rate of return. You are advised to show your workings.

%_____

2. Table 20 contains information about a project that a business is considering investing in.

Average Annual Profit	£120,000
Cost of setting up the project	£600,000

Using the information in Table 20, calculate the average rate of return. You are advised to show your workings.

%_____

3. Table 21 contains information about two projects that a business is considering investing in.

	Project A	Project B
Average Annual Profit	£26,000	£158,500
Cost of setting up the project	£180,000	£834,500

Using the information in Table 20, calculate the average rate of return for each project. You are advised to show your workings. Identify which give the better rate of return for the business. (give your answers to two decimal places)

Project A

% _____

Project B

% _____

The best average rate of return is provided by project

10.   Productivity

1. Gavin is paid £140 per day laying bricks and his output is 800 bricks per day, what is the labour cost per brick?

2. John is also paid £150 but can only lay 950 bricks per day, what is the labour cost per brick?

3. In 2015, Ford had 17,000 workers who produced 650,000 cars whereas in 1999 Ford employed 25,000 people and produced 117,000 cars per year. Calculate the increase in productivity per worker from 1999 to 2015