Insuring the Titanic

NAME: ....

CLASS: ....

DATE: ....

Basic

1) Which of the following statements – impossible, unlikely, likely, certain – best describes the probability of the events below?

a) You roll a normal die and score an eight;

b) You complete all your homework correctly;

c) The football team you support wins their next three matches;

d) You have chips with your next school dinner.

2) You choose a card from a full pack of playing cards 40 times. How may times would you expect to get:

a) a black card   b) a red card   c) a spade

3) When Sanita plays chess on her computer, the probability that the computer wins depends on the level at which Sanita plays the game.

Level	Probability Computer Wins
Hard	80%
Medium	50%
Easy	20%

What is the probability that Sanita wins if the level is set to:

a) Hard?   b) Medium?   c) Easy?

Basic

4) The table below shows the cost of whole life monthly premiums per £1000 insured.
a) Claire is a 33-year-old smoker. She wants to insure her life for £30,000. Calculate her monthly premium.

b) Samantha is a 33-year-old non-smoker. She also wants to insure her life for £30,000. Calculate her monthly premium.

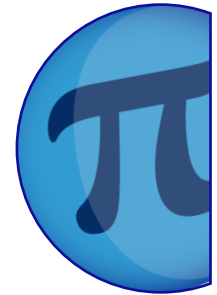| Age Male	Age Female	Non-Smoker	Smoker
25	32	£1.90	£2.35
26	33	£1.95	£2.45
27	34	£1.95	£2.55
28	35	£2.00	£2.70
29	36	£2.05	
30	37	£2.10	

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Core

1) When Sanita plays chess on her computer, the probability that the computer wins depends on the level at which Sanita plays the game.

Level	Probability Computer Wins
Hard	80%
Medium	50%
Easy	20%

What is the probability that Sanita wins if the level is set to:

a) Hard?   b) Medium?   c) Easy?

2) The table below shows the cost of whole life monthly premiums per £1000 insured.

a) Claire is a 33-year-old smoker. She wants to insure her life for £30,000. Calculate her monthly premium.

b) Samantha is a 33-year-old non-smoker. She also wants to insure her life for £30,000.
Calculate her monthly premium.

c) John is a 30-year-old non-smoker. He wants to insure his life for £30,000.
Calculate his monthly payments.

d) Consider your answers to the above questions and comment upon the relative costs of monthly payments.

Age Male	Age Female	Non-Smoker	Smoker
25	32	£1.90	£2.35
26	33	£1.95	£2.45
27	34	£1.95	£2.55
28	35	£2.00	£2.70
29	36	£2.05	
30	37	£2.10	

Core

3) Jane calculates that when running a race when the weather is dry she has a 0.2 chance of beating her personal best time. If the weather is wet she has calculated that her chances of beating her personal best are 0.01. The probability of wet weather for the race is 0.3.

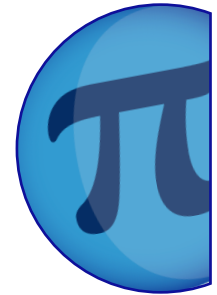Calculate the probability that Jane will beat her personal best time in the race.

NAME: ....

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Advanced

1) Jane calculates that when running a race when the weather is dry she has a 0.2 chance of beating her personal best time. If the weather is wet she has calculated that her chances of beating her personal best are 0.01. The probability of wet weather for the race is 0.3.

Calculate the probability that Jane will beat her personal best time in the race.

2) "Countries with high levels of unemployment will have higher murder rates."
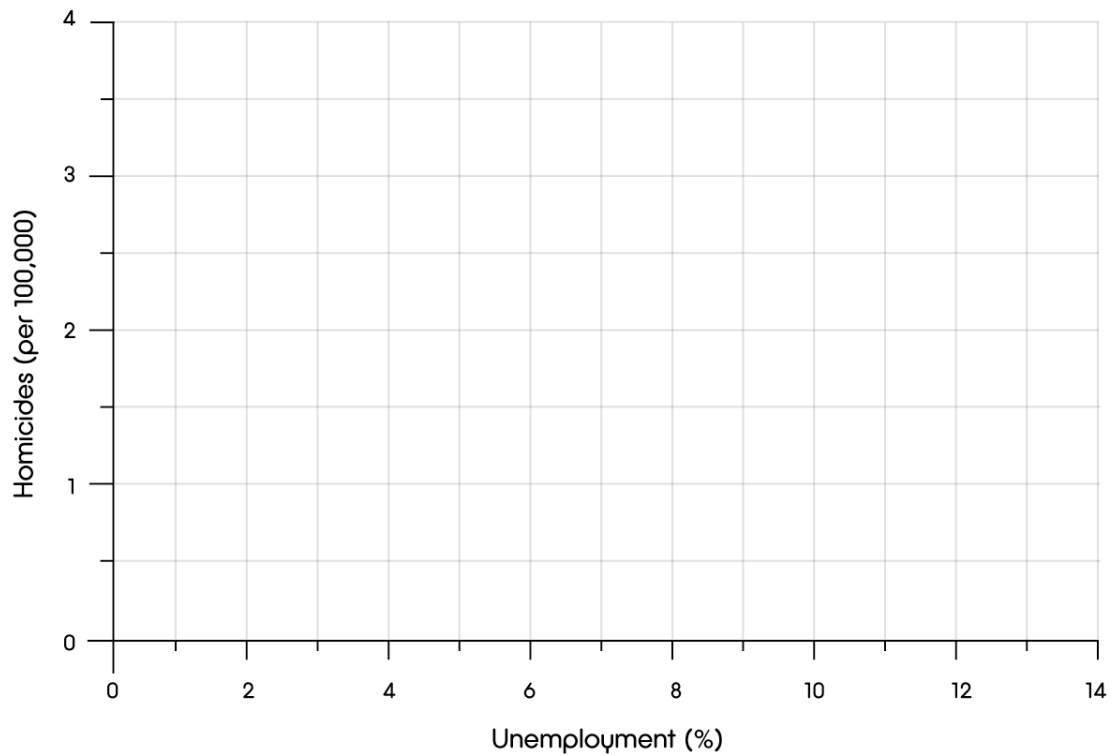a) Using the table below draw a scatter diagram to determine if there is a correlation between unemployment rates and the number of murders.

	Unemployed %	Homicides per 100,000
Australia	8.61	1.82
Brazil	5.93	2.24
Japan	3.51	0.62
United Kingdom	6.25	0.96
USA	5.27	0.99
China	11.51	1.42
France	10.83	1.11
Germany	12.34	1.21
Italy	12.25	2.26
Norway	3.47	1
Poland	11.74	2.88

Advanced

b) On your scatter diagram draw the line of best fit.

c) Using the line of best fit determine the homicide rate of a country with an unemployment rate of 8%.

ANSWERS

Basic

1) a) Impossible   b) Likely   c) Unlikely   d) Likely

2) a) 20   b) 20   c) 10

3) a) 20%   b) 50%   c) 80%

4) a) £73.50   b) £58.50

Core

1) a) 20%   b) 50%   c) 80%
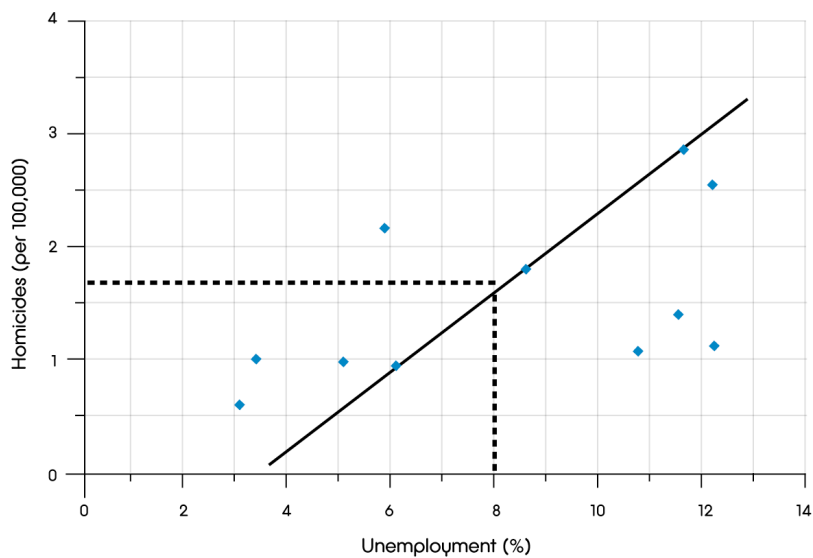
2) a) £73.50   b) £58.50   c) £63

3) 0.143

Advanced

1) 0.143

2) a/b)

c) 160,000