

Subject 38

Please, don't write on the exam paper.

Multiple choice quiz:

1) The domain of the function $f(x) = \frac{1}{x^2 - 2x - 3}$ is :

- a) $] -\infty; -1[\cup] -1; 3[\cup] 3; +\infty[$
- b) $] -\infty; -3[\cup] -3; 1[\cup] 1; +\infty[$
- c) \mathbb{R}

2) A fair die is tossed 4 times.

The probability of getting exactly two "6" is :

- a) $\frac{1}{216}$
- b) $\frac{25}{216}$
- c) $\frac{125}{324}$

3) What is the smallest natural number n for which $e^{5n} \geq 10^{215}$

- a) 98
- b) 99
- c) 100

4) There are 8 balls in a box: 3 balls are black, 5 are white.

Two balls are drawn successively at random, and the first ball is not replaced before the second is drawn.

What is the probability that the second ball is white given that the first ball is black :

- a) $\frac{9}{14}$
- b) $\frac{5}{7}$
- c) $\frac{5}{8}$

5) Scrooge Mc Duck spent his whole life saving money.

In 1949, he saved £1 000 ; in 1950, he saved £1 100 ; in 1951, he saved £1 210 ; in 1952, he saved £1 331 ... (think of a geometric progression with initial term 1000 and common ratio 1.1)

If this pattern continues, how much money will Scrooge Mc Duck have saved from 1949 to 2011 ? (Round to the nearest integer)

- a) £229 950
- b) £3 674 227
- c) £4 042 651