

Sujet n°08

Please do not write on this document and do not forget to hand it back to the jury at the end of the exam

Functions

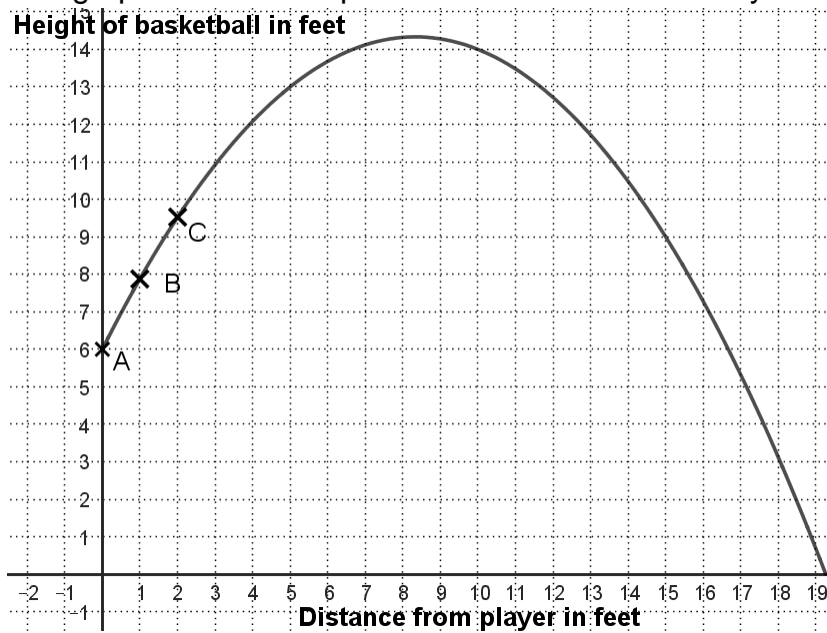
1) Warm up task:

Explain what you know about the main features of the graph of the following functions:

- a linear function
- a quadratic function
- the reciprocal function

2) Main problem:

The graph below is the path of a basketball thrown by an NBA player from the free throw line.



2.1) What kind of function is it?

2.2) Choose among the following equations the one which may correspond to this graph:

a) $y = -0.12x^2 + 2x + 6$

b) $y = 0.12x^2 - 2x + 6$

c) $y = -0.12x^2 + 2x - 6$

2.3) The coordinates for points B and C are (1,7.88), (2,9.53) respectively.

Does this new piece of information confirm or disconfirm your choice?

2.4) What is the highest position of the ball? Where does it hit the floor?

3) Follow up task:

Here are the dimensions of an NBA basketball court.

Do you think the path you studied before ended up with a score?

