

Mathematics Department  
 2020/2021

|       |                              |      |
|-------|------------------------------|------|
| Name: | <b>Linear approximations</b> | Date |
|-------|------------------------------|------|

Q1: Let  $f(2) = -5$ ,  $f'(2) = 1$  the linear approximations of  $f(x)$  is

|                     |                    |
|---------------------|--------------------|
| a) $L(x) = 7 - x$   | b) $L(x) = x - 7$  |
| c) $L(x) = 11 - 5x$ | d) $L(x) = -3 - x$ |

Q2: let  $f(3) = 7$ ,  $f'(3) = 2$  use it to approximate  $f(3.02)$

|                           |                            |
|---------------------------|----------------------------|
| a) $f(3.02) \approx 7.04$ | b) $f(3.02) \approx 3.06$  |
| c) $f(3.02) \approx 1.76$ | d) $f(3.02) \approx -70.4$ |

Q3:

A company estimates that  $f(x)$  thousand software games can be sold at the price of  $\$x$  as given in the table.

|        |    |    |    |
|--------|----|----|----|
| $x$    | 20 | 30 | 40 |
| $f(x)$ | 18 | 14 | 12 |

Estimate the number of games that can be sold at 23\$

|         |         |
|---------|---------|
| a) 10.5 | b) 12.8 |
| c) 6.5  | d) 16.8 |