**Summary:**

100000+ variations. Graphing quadratics. Turning point. Line of symmetry. Transformations of quadratics.

**Question: >100 000 Variations**

1. Complete the following table by matching each graph (A, B, C, D, E, F) with an equation below. Some graphs may not be matched.

<EFOFEX>
id:fxd{0543409e-7837-4199-a8f8-6fd74bd73d67}
FXGP:DP-UZ7XB4C
FXData:

</EFOFEX>

|  |  |  |  |
| --- | --- | --- | --- |
| <EFOFEX> id:fxe{7f45bada-9cf8-4067-a312-7f59e9b28481} FXGP:DP-UZ7XB4C FXData:  </EFOFEX> | <EFOFEX> id:fxe{0542b3ec-bee0-48a0-afcb-3fc0ea522bab} FXGP:DP-UZ7XB4C FXData:  </EFOFEX> | <EFOFEX> id:fxe{fd959f1d-e0dc-4413-b465-b3546f585ddb} FXGP:DP-UZ7XB4C FXData:  </EFOFEX> | <EFOFEX> id:fxe{f99c613c-9890-4ea6-9928-4a591cb47f10} FXGP:DP-UZ7XB4C FXData:  </EFOFEX> |
|  |  |  |  |

b) The graph of *y* = *x*2 is translated <EFOFEX>
id:fxe{202d5b3e-45ac-49f2-b948-c7bcec685495}
FXGP:DP-JPECFEB
FXData:

</EFOFEX> units to the right and <EFOFEX>
id:fxe{ddc2e6df-f76b-4d2e-9379-31548ec19ae7}
FXGP:DP-JPECFEB
FXData:

</EFOFEX> units down. What is the equation of the new parabola?

[2]

c) (i) The graph of <EFOFEX>
id:fxe{09abede1-46fe-48a2-8a68-321e7ed57d76}
FXGP:DP-7TWRK6T
FXData:

</EFOFEX>is reflected about the *x*- axis, then translated <EFOFEX>
id:fxe{e029c0f5-c2c2-49e7-808c-906aa22feb19}
FXGP:DP-7TWRK6T
FXData:

</EFOFEX> units left and <EFOFEX>
id:fxe{e60b3c03-b765-4d00-b965-bca9a2524c92}
FXGP:DP-7TWRK6T
FXData:

</EFOFEX> units up. What is the equation of the new parabola?

[4]

(ii) What is the turning point, *y* intercept and equation of line of symmetry of the new curve?

**Solution:**

a)

|  |  |  |  |
| --- | --- | --- | --- |
| <EFOFEX> id:fxe{80840d28-0101-49fc-bad9-55cadb6ea37a} FXGP:DP-UZ7XB4C FXData:  </EFOFEX> | <EFOFEX> id:fxe{0b13bc2d-ab2d-4e72-bcc1-ab72641c8e88} FXGP:DP-UZ7XB4C FXData:  </EFOFEX> | <EFOFEX> id:fxe{7eb733fe-5638-4880-a620-2a7708340acd} FXGP:DP-UZ7XB4C FXData:  </EFOFEX> | <EFOFEX> id:fxe{730348fb-0fc9-4da1-ac0d-5265675a73aa} FXGP:DP-UZ7XB4C FXData:  </EFOFEX> |
| B | D | E | A |

b) <EFOFEX>
id:fxe{8d2588f3-7786-4dc5-8785-f3a49a308acc}
FXGP:DP-JPECFEB
FXData:

</EFOFEX>

c) <EFOFEX>
id:fxe{f5852f10-5cd9-4e10-af8c-16a73166d17d}
FXGP:DP-7TWRK6T
FXData:

</EFOFEX>

d) <EFOFEX>
id:fxe{8fd3264f-5593-43fa-a861-aa8d43398472}
FXGP:DP-7TWRK6T
FXData:

</EFOFEX>