PLOTTING QUADRATIC GRAPHS

Answer all of these questions. Remember to show your working out in all questions.

MAIN QUESTIONS

1. $y = x^2$
2. $y = x^2 + 1$
3. $y = x^2 - 1$
4. $y = x^2 + 2x$
5. $y = x^2 - 2x$
6. $y = x^2 - 4x + 4$
7. $y = 2x^2$
8. $y = 2x^2 + 4x$
9. $y = 2x^2 - 8$
10. $y = -x^2$
11. $y = -x^2 + 4$
12. $y = -x^2 - 2x$
13. $y = x^2 + 4x + 3$
14. $y = 3x^2 - 6x$
15. $y = 2x^2 + 8x + 6$
16. $y = -2x^2 + 8x - 6$
17. $y = x^2 + x + 1$
18. $y = 0.5x^2 - 2$
19. $y = (1/2)x^2 + 2x$
20. $y = -3x^2 + 12x - 9$

MASTER QUESTIONS

M1. The area of a rectangle is 35 square metres and its perimeter is 24 metres. Find its dimensions.

M2. A ball thrown upwards follows $h = 20t - 5t^2$ where h is height in metres and t is time in seconds. Find maximum height and when it hits the ground.

M3. The product of two consecutive positive integers is 156. Find the integers.

M4. A farmer uses 60 metres of fencing for a rectangular pen against a barn. Find dimensions maximising area and the maximum area.

M5. A stone thrown from a 20-metre cliff follows $h = -5t^2 + 10t + 20$. When does it hit the ground? What maximum height above the cliff?