**INTERSECTIONS OF LINES, PARABOLAS, HYPERBOLAS AND CIRCLES.**

Find the intersections of the following pairs of graphs using algebraic methods and do careful sketch graphs of each situation. You should also check the intersections with your graphics calculators.

***1. y = x2***

***y = x + 6***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***2. y = x2 – 3x – 4***

***=(x – 4)(x + 1)***

***y = x – 7***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***3. y = x2 – 4***

***=(x + 2)(x – 2)***

***y = 2x – 5***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***4. y = x2***

***y = x – 4***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***5. y = x2 + 2x – 8***

***= (x + 4)(x – 2)***

***y = 2x – 4***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***6.\* If y = 2x + p is a***

***tangent to y = x2 + x – 2***

***find the value of p.***

***7. y = 1***

***x***

***y = 2 – x***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***8. y = 1***

***x***

***y = 2x – 1***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***9. y = 6***

***x***

***y = 7 – x***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***10. y = – 4***

***x***

***y = x – 5***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***11.\* If y = b – x is a***

***tangent to y = 4***

***x***

***find b.***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***12.\* If y = mx + 8 is a***

***tangent to y = 2***

***x***

***find the value of m.***

***13. x2 + y2 = 25***

***y = x – 1***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***14. x2 + y2 = 25***

***y = 2x – 2***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***15. y2 + x2 = 5***

***y = x + 1***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***16. y2 + x2 =13***

***y = x + 1***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***17. x2 + y2 = 10***

***y = 3x***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***18. x2 + y2 = 8***

***y = x + 4***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***19\* If y = x + p is a***

***tangent to x2 + y2 = 2***

***find the possible***

***values of c.***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***20.\*\* x2 + y2 = 2***

***y = 1***

***x***