**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***