VD: Unit 9 Topic 1 Part 3

Given a circle or a parabola, T, and a point P (either on T or off T), find all possible lines L that are tangent to T and pass through P.

| Given | Equations of L |
|---|---|
| 1. $T:(x-1)^2+(x+2)^2=20$ , $P(1,3)$ | $x-2y=-5,$ $x+2y=7$ |
| 2. $T:(x-3)^2+y^2=10$ , $P(4,-3)$ | $x-3y=13$ |
| 3. $T:-2(x-6)=(y-1)^2$ , $P(4,3)$ | $x+2y=10$ |
| 4. $T:4(y-3)=(x-2)^2$ , $P(1,2)$ | $y-2=\frac{-1\pm\sqrt{5}}{2}(x-1)$ |
| 5. $T:y^2-4x+8y=-28$ , $P(0,-2)$ | $x+y=-2,$ $-x+3y=-6$ |
| 6. $T:(y+4)^2=4(x-3)$ , $P(1,-5)$ | $x+2y=-9,$ $-x+y=-6$ |
| 7. $T:(x-2)^2+(y-2)^2=10$ $P(6,4)$ | $3x-y=14,$ $x+3y=18$ |
| 8. $(x+1)^2+(y+2)^2=29$ , $P(1,3)$ | $2x+5y=17$ |