Equations of Tangents of Circles GREEN

Find the equations of the tangents of the following circles at the points given.

|  |  |  |  |
| --- | --- | --- | --- |
| $x²+y²=49$ at the point $(-5, 5)$ | $(x-1)²+(y+4)²=25$ at the point $(4, 0)$ | $(x-8)²+(y-1)²=25$ at the point $(4, -2)$ | $(x+1)²+(y-2)²=25$ at the point $(3, 5)$ |
| $(x-2)²+(y-6)²=100$ at the point $(10, 0)$ | $(x-4)²+(y+2)²=25$ at the point $(4, 3)$ | $x²+y²=144$ at the point $(-9, -8)$ | $(x-7)²+(y+5)²=169$ at the point $(-5, 0)$ |

Equations of Tangents of Circles AMBER

Find the equations of the tangents of the following circles at the points given. Start by sketching each of the circles.

|  |  |  |  |
| --- | --- | --- | --- |
| $x²+y²=49$ at the point $(-5, 5)$Gradient of radius $=\frac{-5}{5}=-1$Gradient of tangent $=\frac{}{}$ | $(x-1)²+(y+4)²=25$ at the point $(4, 0)$Gradient of radius $=\frac{}{}$Gradient of tangent $=\frac{}{}$ | $(x-8)²+(y-1)²=25$ at the point $(4, -2)$ | $(x+1)²+(y-2)²=25$ at the point $(3, 5)$ |
| $(x-2)²+(y-6)²=100$ at the point $(10, 0)$ | $(x-4)²+(y+2)²=25$ at the point $(4, 3)$ | $x²+y²=144$ at the point $(-9, -8)$ | $(x-7)²+(y+5)²=169$ at the point $(-5, 0)$ |

Equations of Tangents of Circles RED

Find the equations of the tangents of the following circles at the points given. Start by sketching each of the circles.

|  |  |  |  |
| --- | --- | --- | --- |
| $x²+y²=49$ at the point $(-5, 5)$Gradient of radius $=\frac{-5}{5}=-1$Gradient of tangent $=\frac{}{}$$y=mx+c$ $5=-1×5+c$  $=c$ | $(x-1)²+(y+4)²=25$ at the point $(4, 0)$Gradient of radius $=\frac{4}{3}$Gradient of tangent $=\frac{}{}$ | $(x-8)²+(y-1)²=25$ at the point $(4, -2)$ | $(x+1)²+(y-2)²=25$ at the point $(3, 5)$ |
| $(x-2)²+(y-6)²=100$ at the point $(10, 0)$ | $(x-4)²+(y+2)²=25$ at the point $(4, 3)$ | $x²+y²=144$ at the point $(-9, -8)$ | $(x-7)²+(y+5)²=169$ at the point $(-5, 0)$ |