Equations of Tangents of Circles GREEN

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

$x^2 + y^2 = 50$ 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 $(4, 3)$	$x^2 + y^2 = 145$ 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.

$x^2 + y^2 = 50$ at the point $(-5, 5)$ Gradient of radius $= \frac{-5}{5} = -1$ Gradient of tangent $=$ –	$(x-1)^2 + (y+4)^2 = 25$ at the point $(4, 0)$ Gradient of radius $=$ – Gradient of tangent $=$ –	$(x-8)^2 + (y-1)^2 = 25$ 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 $(4, 3)$	$x^2 + y^2 = 145$ 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.

$x^2 + y^2 = 50$ at the point $(-5, 5)$ Gradient of radius $= \frac{-5}{5} = -1$ Gradient of tangent $=$ – $y = mx + c$ $5 = -1 \times 5 + c$ $= c$	$(x-1)^2 + (y+4)^2 = 25$ at the point $(4, 0)$ Gradient of radius $= \frac{4}{3}$ Gradient of tangent $=$ –	$(x-8)^2 + (y-1)^2 = 25$ 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 $(4, 3)$	$x^2 + y^2 = 145$ at the point $(-9, -8)$	$(x-7)^2 + (y+5)^2 = 169$ at the point $(-5, 0)$

Equations of Tangents of Circles ANSWERS

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

$x^2 + y^2 = 50$ at the point $(-5, 5)$ $y = x + 10$	$(x-1)^2 + (y+4)^2 = 25$ at the point $(4, 0)$ $y = -\frac{3}{4}x + 3$	$(x-8)^2 + (y-1)^2 = 25$ at the point $(4, -2)$ $y = -\frac{4}{3}x + \frac{10}{3}$	$(x+1)^2 + (y-2)^2 = 25$ at the point $(3, 5)$ $y = -\frac{4}{3}x + 9$
$(x-2)^2 + (y-6)^2 = 100$ at the point $(10, 0)$ $y = \frac{4}{3}x - \frac{40}{3}$	$(x-4)^2 + (y+2)^2 = 25$ at the point $(4, 3)$ $x = 3$	$x^2 + y^2 = 145$ at the point $(-9, -8)$ $y = -\frac{9}{8}x - \frac{145}{8}$	$(x-7)^2 + (y+5)^2 = 169$ at the point $(-5, 0)$ $y = \frac{12}{5}x + 12$