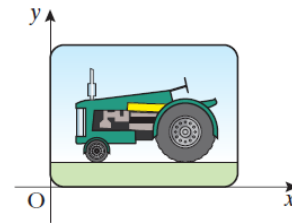**20.** In a computer game a tractor is drawn.
The front wheel's rim has equation
$$(x - 5)^2 + (y - 3)^2 = 4.$$

(i) The ground is a line parallel to the x-axis.
Write down the equation of this line.

(ii) The rear wheel's radius is 3 times the size of the front one's.
If the points of contact of the wheels with the ground are
10 units apart, find the equation of the rear wheel's rim.

(iii) The tractor moves 2 units to the left. Find the new equation of the rim of the rear wheel.

(i)   circle $(x-5)^2 + (y-3)^2 = 4$

centre C $(5,3)$
Radius $r = 2$

$\cdot(5,3)$

$y = 1$
x-axis

(ii)

$R = 3(2) = 6$

Centre $(15,7)$

rear wheel

$c(5,7)$
$\leftarrow 10 \rightarrow 10 \dashv$ $y=1$

equation rear
$(x-15)^2 + (y-7)^2 = 36$

(iii)   2 units left $\Rightarrow$ new centre $(13, 7)$

new rear
$(x-13)^2 + (y-7)^2 = 36$