**Equation of a Tangent to a Circle**

(a) The point P lies on the circle with equation . Find the gradient of the tangent to the circle at point P.

(b) The point Q lies on the circle with equation . Find the gradient of the tangent to the circle at point Q.

(a) The point A lies on the circle with equation . Find the equation of the tangent to the circle at point A.

(b) The point B lies on the circle with equation . Find the equation of the tangent to the circle at point A.

(a) The point R lies on the circle with centre and radius . Find the equation of the tangent to the circle at point R.

(b) The point S lies on the circle with centre . Find the equation of the tangent to the circle at point S.

(a) Point P lies on a circle with centre . Point Q with coordinates lies on the tangent to the circle at P. Find the value of .

(b) Point A lies on the circle with equation . The line L is the tangent to the circle at point A. Find the coordinates of the point where line L crosses the -axis.

**Equation of a Tangent to a Circle**

(a) The point P lies on the circle with equation . Find the gradient of the tangent to the circle at point P.

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