

5th exercise

1) a. (d_1) & (d_2) are tangent to (c) at A & B respectively (given)
then $[OA]$ is perp. to (d_1) (tangent theorem: radius and tangent
and $[OB]$ is perp. to (d_2) are perpendicular).
but (d_1) & (d_2) are parallel (given)
so, $[OA]$ & $[OB]$ are parallel (2 st. lines perp. to 2 parallel st.
lines are parallel)

but O is a common point

thus A, O & B are collinear

b. A, O & B are collinear (proved)

O is the center of circle (c) (given)

A & B are pts. on (c) (given)

so, $[AB]$ is a diameter of (c)

then, $R = \frac{AB}{2}$

$$R = \frac{a}{2}$$

c. $y = ax$ (linear function)

$$r = \frac{a}{2}$$

$$r = \frac{1}{2} (a)$$

then, radius of (c) is proportional to a .

d. $[OA]$ & $[OB]$ are perp. to (d_1) & (d_2) respectively (proved)

A, O & B are collinear (proved)

then, O is equidistant from (d_1) & (d_2)

(d_1) & (d_2) are fixed and parallel (given)

thus, as A & B vary, O will draw a st. line parallel to (d_1) & (d_2)
or perp. bisector of $[AB]$

P-9.