Question

a) The circle given by $x^2 + y^2 - 4x - 10 = 0$ can be written in standard form like this: $(x - h)^2 + y^2 = 14$. What is the value of h in this equation?

Solution

$x^2 + y^2 - 4x - 10 = 0 \Leftrightarrow (x^2 - 4x + 4) + y^2 - 10 = 4 \Leftrightarrow (x - 2)^2 + y^2 = 14$ so we have that $h = 2$.

Question

b) What is the radius for the circle given by the equation $x^2 + (y - 1)^2 = 12$? Round your answer to the nearest thousandth.

Solution

In this case we have: $R^2 = 12 \Rightarrow R = \sqrt{12} \approx 3.464$.

Question

c) A degenerate circle is:

1: a circle with radius $r = 0$.

2: a point.

3: a line.

A: All three are correct

B: only 2 is correct

C: only 3 is correct

D: 1 and 2 are correct

E: only 1 is correct.

Solution

D. 1 and 2 are correct. It means a degenerate circle is a circle with radius $r = 0$ and a point.

Answer:

a) $h = 2$

b) $R = \sqrt{12} \approx 3.464$

c) D.