

Problem 1. Find the x and y intercepts of the line

$$y = 2(x - 5) + 3.$$

Problem 2. Find the x and y intercepts of the circle

$$(x - 5)^2 + (y - 12)^2 = 169.$$

Problem 3. Find the x and y intercepts of the parabola

$$y = x^2 - 5x - 14.$$

Problem 4. For each continent c , let $f(c)$ denote the first letter of the English name of the continent. This creates a function.

- (a) What is the domain of the function? How big is it?
- (b) What is the codomain of the function? How big is it?
- (c) What is the range of the function? How big is it?
- (d) What is $f(\text{Europe})$?

Problem 5. Let $f(x) = x^2 - 7x + 1$.

(a) Find $f(1)$.

(b) Find $f(2)$.

(c) Find $f(-3)$.

Problem 6. The graph of a function f is a picture of the locus of the equation $y = f(x)$.

For the given function, determine if the given point is on the graph of the function. Write **T** (for true) in the blank if the point is on the graph, and write **F** (for false) in the blank if the point is not on the graph.

$$g(x) = 3x - 7$$

$$h(x) = x^2 - 4x$$

(a) _____ $(0, 0)$

(a) _____ $(0, 0)$

(b) _____ $(0, 7)$

(b) _____ $(1, 4)$

(c) _____ $(1, -4)$

(c) _____ $(2, -4)$

(d) _____ $(3, -7)$

(d) _____ $(-1, 5)$

(e) _____ $(-5, -22)$

(e) _____ $(3, 1)$

Problem 7. Let $f(x) = x^2 - 8x + 15$.

(a) Solve the equation $f(x) = 0$.

(b) Find the x and y intercepts of the equation $y = f(x)$.

(c) The graph of f is a parabola. Find its vertex.