## Let's work together.



1. Given the function $\boldsymbol{g}$ defined by $\boldsymbol{g}(\mathbf{x})=\mathbf{x}^{\mathbf{2}} \mathbf{- 4}$, find the following:
(a) $g(-3)$
(b) $g(0)$
2. Using the function rule $\boldsymbol{h}(\mathbf{x})=\mathbf{1 5}-\frac{\mathbf{3}}{\mathbf{2}} \mathbf{x}$, find the value of x when $h(\mathrm{x})=24$.
3. If the function $f(x)=2 x-3$ and $g(x)=\frac{\mathbf{3}}{\mathbf{2}} x+1$ then which of the following is a true statement?
(1) $f(0)>g(0)$
(3) $f(2)=g(2)$
(2) $f(8)=g(8)$
(4) $g(4)<f(4)$
4. Given the function $f$ defined by $f(x)=3 \mathbf{x}^{2}-4$, which statement is true?
(1) $f(0)=0$
(3) $\mathrm{x}=5$ when $f(\mathrm{x})=75$
(2) $f(-2)=f(2)$
(4) $f(5) \cdot f(2)=f(10)$
5. Officials in a town use a function, $P$ to analyze traffic patterns. $P(n)$ represents the rate of traffic through an intersection where $\boldsymbol{n}$ is the number of observed vehicles in a specified time interval. What would be the most appropriate domain for the function?
(1) the set of real numbers
(3) the set of whole numbers
(2) the set of rational numbers
(4) the set of integers
6. Amy is purchasing $t$-shirts for her softball team. A local company has agreed to make the shirts for $\$ 9$ each with a one-time $\$ 85$ charge for graphic designs.
(a) Write a function rule in function notation that describes the cost, $\boldsymbol{C}$, for the shirts in terms of $\boldsymbol{q}$, the quantity ordered.
(b) Find the cost of ordering 20 t-shirts.
(c) If the softball team has $\$ 450$, how many $t$-shirts can they purchase?
7. The function $\mathbf{y}=\boldsymbol{r}(\mathbf{x})$ represents the radius of a circle for a given area, $\mathbf{x}$. A graph of the function is shown in this figure. Using the graph, complete a and b .

(a) Find $r(7)$. Explain the meaning of this value in the context of the situation.
(b) Find the value of x to the nearest integer if $r(\mathrm{x})=1.25$.

## PIPS Question:

Given the function $f$ defined by $f(x)=\frac{\mathbf{1}}{\mathbf{2}} x-5$, the function $h$ is defined by $h(x)=4 f(x)$.
(a) Find $h(6)$
(b) If function $g$ is defined as $\boldsymbol{g}(\mathbf{x})=\boldsymbol{h ( x )} \mathbf{- 7}$, write the function rule that describes $\mathrm{y}=\boldsymbol{g}(\mathrm{x})$.

