

1. Write the equation of the line that goes through the point (2, 3) with slope 4? $y =$ _____

(2)

2. What is the (shortest) distance from the circle $(x-2)^2 + (y-5)^2 = 9$ to the point (4,1)? _____

(2)

3. The following limits refer to the graph of f in the diagram.

(a) $\lim_{x \rightarrow 1} f(x) =$ _____

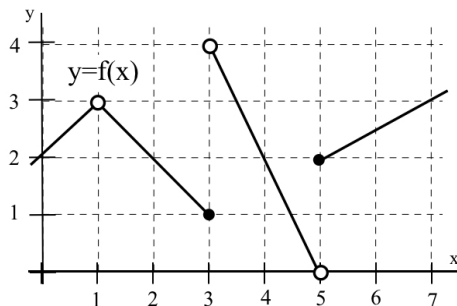
(b) $\lim_{x \rightarrow 5^+} f(x) =$ _____

(1 each)

(c) $\lim_{x \rightarrow 3^-} f(x) =$ _____

(d) $\lim_{x \rightarrow 3} f(x+1) =$ _____

(e) $\lim_{h \rightarrow 0} \frac{f(2+h) - f(2)}{h} =$ _____



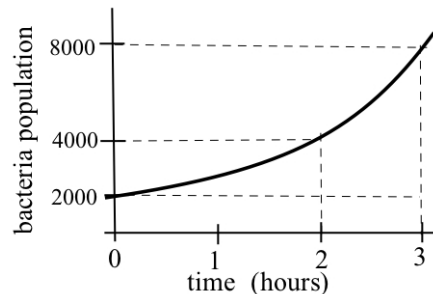
4. The diagram shows the bacteria population (B) at different times (t).

- (2) (a) What is the average rate population change

from time $t=0$ to $t=2$ hours? _____

- (b) The bacteria population is increasing more rapidly at

- (1) $t=1$ $t=2$ same (circle one)



5. $\lim_{x \rightarrow 2} \frac{x^2 + x - 6}{x^2 - x - 2} =$ _____

$\lim_{x \rightarrow 4^-} \frac{|4 - x|}{x - 4} =$ _____

$\lim_{x \rightarrow 3^-} \text{INT}(x + 4) =$ _____

(2 each)

6. If $\lim_{x \rightarrow 3} f(x) = \lim_{x \rightarrow 3} g(x) = 0$ then $\lim_{x \rightarrow 3} f(x)/g(x)$

Answer: _____

(1)

a) = 1

b) = 3

c) must be close to 1

d) is not defined

e) Not enough information is given

7. If the units of x are birds and the units of $y=f(x)$ are ccats, then the units of the slope are _____

(1)

Bonus (+1 if correct) Name an important mathematician who lived during the last 100 years. _____
(No one at BC is an important mathematician.)