1. Sketch the interval \((a, b)\) on the x-axis with the point \(c\) inside the interval. Then find the largest value of \(\delta > 0\) such that for all \(x\), \(a < x < b\) whenever \(0 < |x - c| < \delta\).

\[a = 4, \quad b = 9, \quad c = 8\]

Sketch the interval \((a, b)\) on the x-axis with the point \(c\) inside the interval. Choose the correct answer below.

- Option A.
- Option B.
- Option C.
- Option D.

The largest value of \(\delta\) is \(\frac{1}{12}\). (Type an exact answer in simplified form.)

2. Sketch the interval \((a, b)\) on the x-axis with the point \(c\) inside. Then find the largest value of \(\delta > 0\) such that for all \(x\), \(0 < |x - c| < \delta\) implies \(a < x < b\).

\[a = -\frac{1}{3}, \quad b = -\frac{1}{7}, \quad c = -\frac{1}{4}\]

Choose the correct sketch below.

- Option A.
- Option B.
- Option C.
- Option D.

The largest possible value for \(\delta\) is \(\frac{1}{12}\). (Type an integer or a simplified fraction.)

3. Sketch the interval \((a, b)\) on the x-axis with the point \(c\) inside. Then find the largest value of \(\delta > 0\) such that for all \(x\), \(0 < |x - c| < \delta\) implies \(a < x < b\).

\[a = 3.7601, \quad b = 4.2391, \quad c = 4\]

Choose the correct sketch below.

- Option A.
- Option B.
- Option C.
- Option D.

The largest possible value for \(\delta\) is \(0.2391\). (Type an exact answer.)
4. Use the graph below to find the largest value of \( \delta > 0 \) such that for all \( x \), \( |f(x) - L| < \varepsilon \) whenever \( 0 < |x - c| < \delta \). 

![Graph](image)

The largest value of \( \delta \) is \( \frac{17}{9} \). 
(Simplify your answer. Type an exact answer. Type an integer or a fraction.)

5. For the given function \( f(x) \) and values of \( L \), \( c \), and \( \varepsilon > 0 \) find the largest open interval about \( c \) on which the inequality \( |f(x) - L| < \varepsilon \) holds. Then determine the largest value for \( \delta > 0 \) such that for all \( x \) satisfying \( 0 < |x - c| < \delta \), the inequality \( |f(x) - L| < \varepsilon \) holds. 

\[ f(x) = 5x + 7, \quad L = 37, \quad c = 6, \quad \varepsilon = 0.05 \]

The largest open interval about \( c \) on which the inequality \( |f(x) - L| < \varepsilon \) holds is \( (\frac{5.99}{\varepsilon}, \frac{6.01}{\varepsilon}) \). 
(Type integers or decimals.)

The largest value of \( \delta > 0 \) such that for all \( x \) satisfying \( 0 < |x - c| < \delta \), the inequality \( |f(x) - L| < \varepsilon \) holds is \( 0.01 \). 
(Simplify your answer. Type an integer or a decimal.)

6. For the given function \( f(x) \) and values of \( L \), \( c \), and \( \varepsilon > 0 \) find the largest open interval about \( c \) on which the inequality \( |f(x) - L| < \varepsilon \) holds. Then determine the largest value for \( \delta > 0 \) such that for all \( x \) satisfying \( 0 < |x - c| < \delta \), the inequality \( |f(x) - L| < \varepsilon \) holds. 

\[ f(x) = \sqrt{19x + 26}, \quad L = 11, \quad c = 5, \quad \varepsilon = 0.07 \]

The largest open interval about \( c \) on which the inequality \( |f(x) - L| < \varepsilon \) holds is \( (\frac{4.9192}{\varepsilon}, \frac{5.0813}{\varepsilon}) \). 
(Round to four decimal places as needed.)

The largest value of \( \delta > 0 \) such that for all \( x \) satisfying \( 0 < |x - c| < \delta \), the inequality \( |f(x) - L| < \varepsilon \) holds is \( 0.0808 \). 
(Simplify your answer. Round to four decimal places as needed.)

7. For the given function \( f(x) \) and numbers \( L \), \( c \), and \( \varepsilon > 0 \), find the largest open interval about \( c \) on which the inequality \( |f(x) - L| < \varepsilon \) holds. Then give the largest value of \( \delta > 0 \) such that for all \( x \) satisfying \( 0 < |x - c| < \delta \) the inequality \( |f(x) - L| < \varepsilon \) holds. 

\[ f(x) = \sqrt{20 - x}, \quad L = 1, \quad c = 19, \quad \varepsilon = 1 \]

The largest open interval about \( c \) on which the inequality \( |f(x) - L| < \varepsilon \) holds is \( (\frac{16}{\varepsilon}, \frac{20}{\varepsilon}) \). 
(Type integers or decimals.)

Find the largest value \( \delta > 0 \) such that for all \( x \) satisfying \( 0 < |x - c| < \delta \) the inequality \( |f(x) - L| < \varepsilon \) holds. 
\( \delta = \frac{1}{\varepsilon} \) 
(Simplify your answer. Type an integer or a decimal.)
8. For the given function \( f(x) \) and values of \( L, c, \) and \( \varepsilon > 0 \) find the largest open interval about \( c \) on which the inequality \( |f(x) - L| < \varepsilon \) holds. Then determine the largest value for \( \delta > 0 \) such that for all \( x \) satisfying \( 0 < |x - c| < \delta \), the inequality \( |f(x) - L| < \varepsilon \) holds.

\[
f(x) = \frac{1}{x}, \quad L = \frac{1}{8}, \quad c = 8, \quad \varepsilon = 0.01
\]

The largest open interval about \( c \) on which the inequality \( |f(x) - L| < \varepsilon \) holds is \((\frac{200}{27}, \frac{200}{23})\).

(Type exact answers.)

The largest value of \( \delta > 0 \) such that \( 0 < |x - c| < \delta \rightarrow |f(x) - L| < \varepsilon \) is \(\frac{16}{27}\).

(Type an exact answer.)

9. For the given function \( f(x) \) and numbers \( L, c, \) and \( \varepsilon > 0 \), find the largest open interval about \( c \) on which the inequality \( |f(x) - L| < \varepsilon \) holds. Then give the largest value of \( \delta > 0 \) such that for all \( x \) satisfying \( 0 < |x - c| < \delta \) the inequality \( |f(x) - L| < \varepsilon \) holds.

\[
f(x) = x^2 - 7, \quad L = 2, \quad c = 3, \quad \varepsilon = 1
\]

The largest open interval about \( c \) on which the inequality \( |f(x) - L| < \varepsilon \) holds is \((\sqrt{2} \sqrt{10}, \sqrt{10})\).

(Type exact answers, using radicals as needed.)

Find the largest value of \( \delta > 0 \) such that for all \( x \) satisfying \( 0 < |x - c| < \delta \) the inequality \( |f(x) - L| < \varepsilon \) holds.

\[
\delta = \sqrt{10} - 3
\]

Note: \( \sqrt{10} \) stands for square root of...; also, \( \sqrt{8} \) simplifies to \(2 \sqrt{2}\).

(Simplify your answer. Type an exact answer, using radicals as needed.)

10. For the given function \( f(x) \), the point \( c \), and a positive number \( \varepsilon \), find \( L = \lim_{x \to c} f(x) \). Then find the largest value of \( \delta > 0 \) such that \( |f(x) - L| < \varepsilon \) whenever \( 0 < |x - c| < \delta \).

\[
f(x) = 6 - 4x, \quad c = 5, \quad \varepsilon = 0.01
\]

\[
L = \frac{14}{10}
\]

(Simplify your answer.)

What is the largest possible value for \( \delta \)?

\[
\delta = 0.0025
\]

(Type an exact answer in simplified form.)

11. For the given function \( f(x) \) and the given values of \( c \) and \( \varepsilon > 0 \), find \( L = \lim_{x \to c} f(x) \).

Then determine the largest value for \( \delta > 0 \) such that \( |f(x) - L| < \varepsilon \) whenever \( 0 < |x - c| < \delta \).

\[
f(x) = \frac{x^2 - 169}{x - 13}, \quad c = 13, \quad \varepsilon = 0.07
\]

Notice: Only questions 1 thru 10 on MyMathLab HW

The value of \( L \) is \_________.

(Simplify your answer.)

The largest value of \( \delta > 0 \) such that \( |f(x) - L| < \varepsilon \) whenever \( 0 < |x - c| < \delta \) is \_________.

(Simplify your answer. Round to the nearest hundredth as needed.)

12. For the given function \( f(x) \), the point \( c \), and a positive number \( \varepsilon \), find \( L = \lim_{x \to c} f(x) \). Then find the largest value of \( \delta > 0 \) such that \( |f(x) - L| < \varepsilon \) whenever \( 0 < |x - c| < \delta \).

\[
f(x) = \sqrt{8 - 8x}, \quad c = -1, \quad \varepsilon = 0.2
\]

\[
L = \__________
\]

(Simplify your answer.)

What is the largest possible value for \( \delta \)?

\[
\delta = \__________
\]

(Type an exact answer in simplified form.)