

CALCULATOR

21)  $\lim_{x \rightarrow 0} \frac{\sqrt{x+16} - 4}{x}$

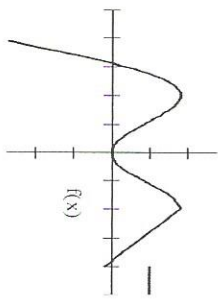
22) Determine the  $\lim_{t \rightarrow 1} h(t)$ , where  $h(t) = \begin{cases} t^2 + 1, & t < 1 \\ \frac{1}{2}(t+1), & t \geq 1 \end{cases}$

23)  $\lim_{x \rightarrow -2} 2x + \sqrt{4x^2 + x + 1}$

24) Given that  $\lim_{x \rightarrow c} f(x) = -\frac{3}{4}$  and  $\lim_{x \rightarrow c} g(x) = \frac{2}{3}$   
Determine  $\lim_{x \rightarrow c} (f(x) + 6g(x))$

25) And 27) Determine the four limits

- a)  $\lim_{x \rightarrow 4^+} f(x)$
- b)  $\lim_{x \rightarrow 4^-} f(x)$
- c)  $\lim_{x \rightarrow 2} f(x)$
- d)  $\lim_{x \rightarrow -\infty} f(x)$



28) Given the following  $\lim_{x \rightarrow 2} f(x) = -\frac{1}{2}$  and  $\lim_{x \rightarrow 2} g(x) = \frac{2}{3}$ , find  $\lim_{x \rightarrow 2} \frac{f(x)}{g(x)}$ .

- a.  $-1/3$
- b.  $1/3$
- c.  $-3/4$
- d.  $-3$
- e. None of these

29) Determine the value of c so that f(x) is continuous on the entire real line when  $f(x) = \begin{cases} x-2, & x \leq 5 \\ cx-3, & x > 5 \end{cases}$

- f. 0
- g. 6/5
- h. 1
- i. 5/6
- j. None of these

30)  $g(x) = \frac{2x+3}{2x^2+x-3}$  Determine the vertical asymptotes for g(x).

- k.  $x = -3/2, x = 1$
- l.  $x = -3/2$
- m.  $x = 1$
- n.  $y = 1$
- o. None of these

31) State the conditions needed for a function to be continuous at a point.

32) The cost in millions of dollars for a governmental agency to seize x percent of an illegal drug is given by the following equation.  $C = \frac{528x}{100-x}, 0 \leq x < 100$

- a. Find the cost of seizing 25 percent of the drug.
- b. Find the cost of seizing 75 percent of the drug.

33) Find the limit of C as  $x \rightarrow 100$  and interpret its meaning.

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