

59. True. End behavior as $x \rightarrow \infty$ could be different than as $x \rightarrow -\infty$

60. False. One side could be ∞ and the other $-\infty$.

61. A

62. E

63. C

64. D

70.
$$\lim_{x \rightarrow \infty} \frac{\ln x}{\log x} = \lim_{x \rightarrow \infty} \frac{\ln x}{\frac{\ln x}{\ln 10}} = \boxed{\ln 10}$$

Change of base
 $\log_{10} x = \frac{\ln x}{\ln 10}$

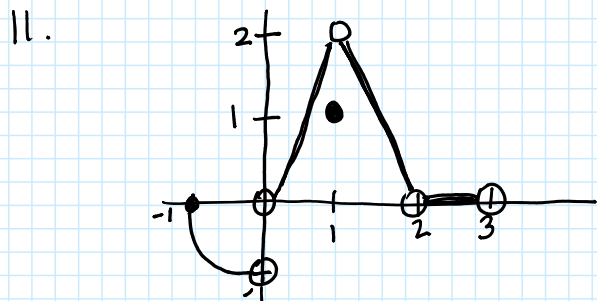
62.
$$\lim_{x \rightarrow 0} \frac{\cos 2x}{x} = \frac{1}{0} \text{ und.}$$

1. $y = \frac{1}{(x+2)^2}$
 Continuous $(-\infty, -2) \cup (-2, \infty)$
 Infinite discontinuity @ $x = -2$

3. $y = \frac{1}{x^2+1}$ $x^2+1=0$
 $x^2=-1$
 Continuous: $(-\infty, \infty)$
 No discontinuities

7. $y = \frac{|x|}{x}$
 Cont: $(-\infty, 0) \cup (0, \infty)$
 Jump disc at $x = 0$

9. $y = e^{\frac{1}{x}}$
 Cont $(-\infty, 0) \cup (0, \infty)$
 Infinite disc at $x = 0$



- a) $f(-1)$ yes
- b) $\lim_{x \rightarrow -1^+} f(x)$ Yes
- c) $\lim_{x \rightarrow -1^+} f(x) = f(-1)$? Yes
- d) f cont at $x = -1$ Yes

- 12 a) $f(1)$ yes
- b) $\lim_{x \rightarrow 1} f(x)$ Yes
- c) $\lim_{x \rightarrow 1} f(x) = f(1)$? NO
- d) f cont at $x = 1$? NO

- 13. a) NO
- b) NO

14. Cont: $[-1, 0) \cup (0, 1) \cup (1, 2) \cup (2, 3)$

15. $f(2) = 0$

d) f cont at $x = -1$ Yes

$$19. f(x) = \begin{cases} 3-x, & x < 2 \\ \frac{x}{2} + 1, & x > 2 \end{cases}$$

a) $x = 2$

b) $3 - 2 = 1$ L.H. limit

$\frac{2}{2} + 1 = 2$ R.H. limit

Not removable - jump disc.

15. $f(2) = 0$

16. $f(1) = 2$

17. NO, the Right - and Left - hand limits at $x = 0$ are not equal.

18. Yes, if $f(3) = 0$, cont. at 3.