3-0235 — 50 SHEETS — 5 SQUARES
3-0236 — 100 SHEETS — 5 SQUARES
3-0237 — 200 SHEETS — 5 SQUARES
3-0137 — 200 SHEETS — FILLER
COMET

2) $\lim_{x \to 1^-} f(x) = 3$ As x approaches 1 from the left, f(x) approaches 3.

$\lim_{x \to 1^+} f(x) = 7$ As x approaches 1 from the right, f(x) approaches 7.

$\lim_{x \to 1} f(x)$ does not exist because $\lim_{x \to 1^-} f(x) \neq \lim_{x \to 1^+} f(x)$

5) a. $\lim_{x \to 1^-} f(x) = 2$ b. $\lim_{x \to 1^+} f(x) = 3$ c. $\lim_{x \to 1} f(x)$ D.N.E. because $\lim_{x \to 1^-} f(x) \neq \lim_{x \to 1^+} f(x)$

d. $\lim_{x \to 5} f(x) = 4$ e. f(5) does not exist because it is not defined

7) a. $\lim_{t \to 0^-} g(t) = -1$ b. $\lim_{t \to 0^+} g(t) = -2$ c. $\lim_{t \to 0} g(t)$ D.N.E because $\lim_{t \to 0^-} g(t) \neq \lim_{t \to 0^+} g(t)$

d. $\lim_{t \to 2^-} g(t) = 2$ e. $\lim_{t \to 2^+} g(t) = 0$ f. $\lim_{t \to 2} g(t)$ D.N.E because $\lim_{t \to 2^-} g(t) \neq \lim_{t \to 2^+} g(t)$

g. $g(2) = 1$ f. $\lim_{t \to 4} g(t) = 3$

9) a. $\lim_{x \to -7} f(x) = -\infty$ b. $\lim_{x \to -3} f(x) = \infty$ c. $\lim_{x \to 0} f(x) = \infty$

d. $\lim_{x \to 6^-} f(x) = -\infty$ e. $\lim_{x \to 6^+} f(x) = \infty$ f. $x = -7$, $x = -3$, $x = 0$, $x = 6$

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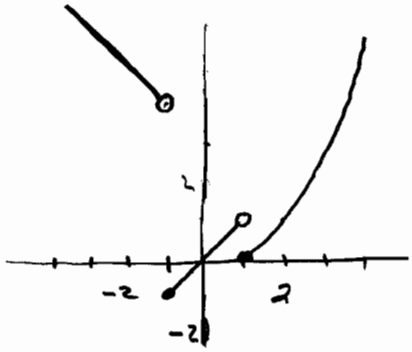
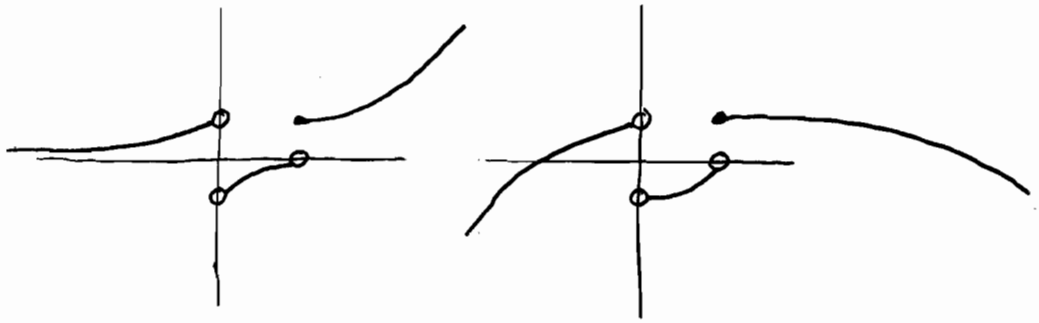
12)




$\lim_{x \to a} f(x)$ exists $\{a \in \mathbb{R} \mid a \neq -1, 1\}$

14) Here are two possible graphs



19) $f(x) = \dfrac{e^x - 1 - x}{x^2}$ Guess the limit $\lim_{x \to 0} f(x)$

| $x$ | $f(x)$ | $x$ | $f(x)$ |
|---|---|---|---|
| 1 | .718282 | -1 | .367879 |
| .5 | .594885 | -.5 | .426123 |
| .1 | .517092 | -.1 | .483742 |
| .05 | .508439 | -.05 | .491770 |
| .01 | .501671 | -.01 | .498337 |

It appears that $\lim_{x \to 0} f(x) = 1/2$

25) $\lim_{x \to -3^+} \dfrac{x+2}{x+3} = -\infty$ since numerator is negative and denominator is positive

34) $y = \dfrac{x^2+1}{3x - 2x^2}$

a. Vertical asymptotes occur where denominator equals zero

$3x - 2x^2 = 0$

$x(3 - 2x) = 0$

so $x = 0$, $x = 3/2$

b. Graph the function

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40) $m = \dfrac{m_0}{\sqrt{1 - v^2/c^2}}$

what happens as $v \to c^-$?

$m_0$ is a constant and does not change as $v \to c^-$

Since $v$ approaches $c$ from the left, $v$ is always less than $c$ and $v^2$ is less than $c^2$. Therefore

$\frac{v^2}{c^2}$ is always slightly less than 1,

and $1 - \frac{v^2}{c^2}$ is going to be a small positive value.

Therefore, as $v \to c^-$, $\sqrt{1 - v^2/c^2} \to 0^+$

since the denominator approaches 0 from the right

the mass $m$ approaches $+\infty$.