

SM3H Unit 3 test review

- $\frac{3}{2x+1}$
- $\frac{2y}{7}$
- $\frac{x-3}{4x-3}$
- $-\frac{3x^2(x-1)}{25y(x+1)}$
- $\frac{2(8x-1)(y+8)}{5y(x-3)}$
- $\frac{1}{2(x-y)}$
- $\frac{y-3}{x+4}$
- $\frac{10x+45}{x+6}$
- $\frac{2p^2-2p+1}{(p-3)(p-2)(p+3)}$
- $\frac{-2x^2+12x}{(x+3)(x-4)}$
- $\frac{5x^2-27x+24}{(4x-3)(x+1)}$
- $\frac{9m-7}{-(m-9)}$

13. V.A.: $x = 5$, H.A.: $y = 2$

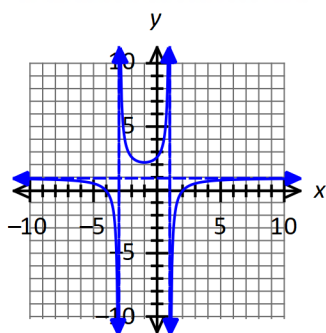
14. V.A.: $x = 2, x = -2$; H.A.: $y = 0$

15. V.A.: $x = -3, x = 1$; H.A.: $y = 1$

x-int: $(-4, 0), (2, 0)$; y-int: $(0, \frac{8}{3})$

Domain: $(-\infty, -3) \cup (-3, 1) \cup (1, \infty)$

Holes: none

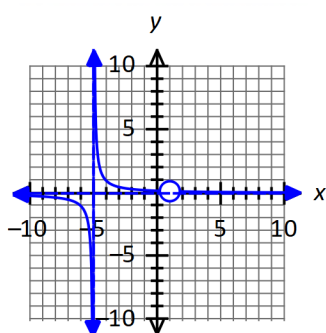


16. V.A.: $x = -5$; H.A.: $y = 0$

x-int: none; y-int: $(0, \frac{1}{5})$

Domain: $(-\infty, -5) \cup (-5, 1) \cup (1, \infty)$

Holes: $(1, \frac{1}{6})$

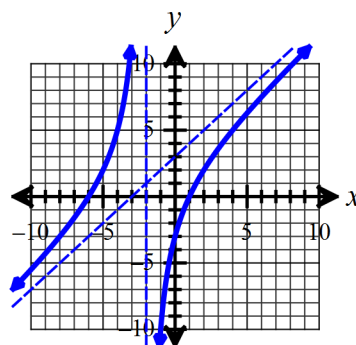


17. V.A.: $x = -2$; O.A.: $y = x + 3$

x-int: $(-6, 0), (1, 0)$; y-int: $(0, -3)$

Domain: $(-\infty, -2) \cup (-2, \infty)$

Holes: none

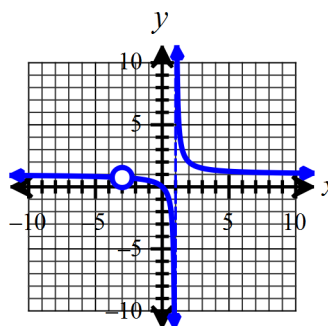


18. V.A.: $x = 1$; H.A.: $y = 1$

x-int: $(0, 0)$; y-int: $(0, 0)$

Domain: $(-\infty, -3) \cup (-3, 1) \cup (1, \infty)$

Holes: $(-3, \frac{3}{4})$



19.

Domain:

$(-\infty, -3) \cup (-3, \infty)$

Range:

$(-\infty, 2) \cup (2, \infty)$

x-intercept(s): $(0, 0)$

y-intercept: $(0, 0)$

Increasing:

$(-\infty, -3) \cup (-3, \infty)$

Decreasing: none

Constant: none

Vertical Asymptote(s):

$x = -3$

Positive:

$(-\infty, -3) \cup (0, \infty)$

Negative:

$(-3, 0)$

Maximums / minimums: none

Symmetry: none

End Behavior/Limits:

$\lim_{x \rightarrow -\infty} f(x) = 2$ $\lim_{x \rightarrow \infty} f(x) = 2$

$\lim_{x \rightarrow -3^-} f(x) = \infty$ $\lim_{x \rightarrow -3^+} f(x) = -\infty$

Horizontal Asymptote:

$y = 2$

20. $\frac{A}{3x+2} + \frac{B}{x-2}$

21. $\frac{\frac{1}{2}}{x+1} + \frac{\frac{3}{2}}{x-1}$

22. $\frac{2}{x-3} + \frac{-2}{x-2}$

23. $x = -1$

24. $x = -4, x = 3$ is extraneous, $x \neq 3$

25. $x = 7, 5 \quad x \neq 0$

26. $x = -\frac{1}{3}, x = 2$ is extraneous, $x \neq -5, 2$

27. no solution $x \neq 0, -2$ both are extraneous

answers

28. $x = 3 \pm \sqrt{2} \quad x \neq 1$

29. $(-\infty, -3) \cup (3, \infty)$

30. $(-9, -4) \cup [-1, 1]$

31. $(-9, 0)$

32. $(-\infty, -2] \cup (1, 3]$

33. $(-\infty, -8] \cup [5, \infty)$

34. $(-1, 1)$

35. $[-4, 0)$

36. $[\frac{2}{3}, 3)$

37. $(-\frac{2}{3}, 2]$