

Unit 3 Quiz Review

Date _____

Divide.

1) $(5a^4 - 6a^3 - a^2 - 10a - 15) \div (a - 2)$

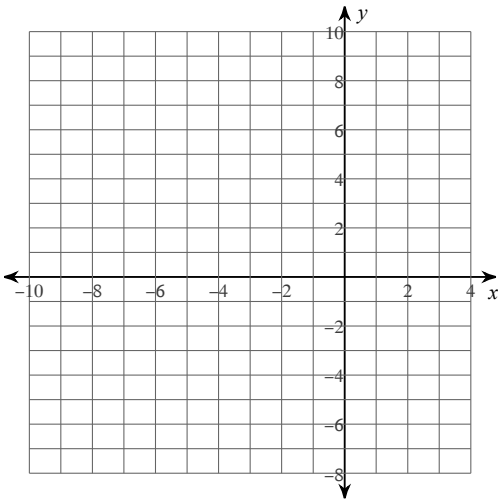
2) $(n^3 + n^2 - 40n + 8) \div (n + 7)$

3) $(5n^4 + 30n^3 - 4n - 31) \div (n + 6)$

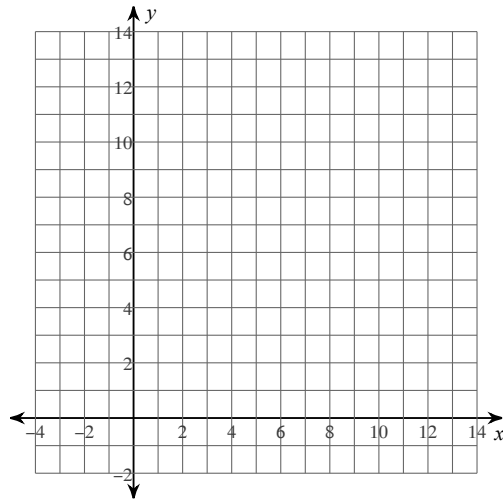
4) $(x^5 + 5x^3 + 9x^2 - 3x - 3) \div (x + 1)$

Simplify and state the excluded values for each function. Then graph.

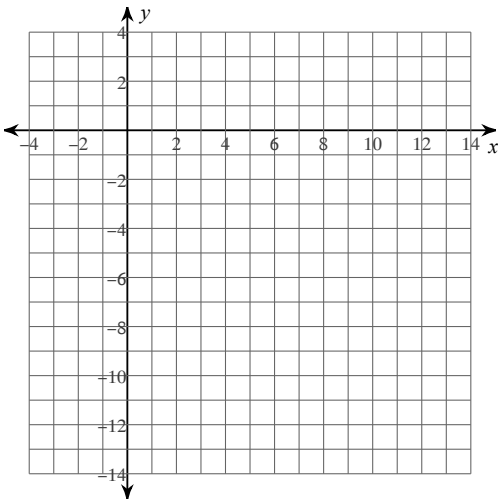
$$5) y = \frac{x^2 + 8x + 12}{x + 6}$$



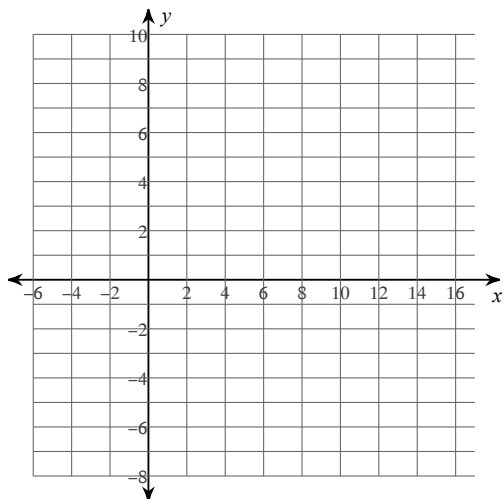
$$6) y = \frac{x^2 - 7x - 18}{x - 9}$$



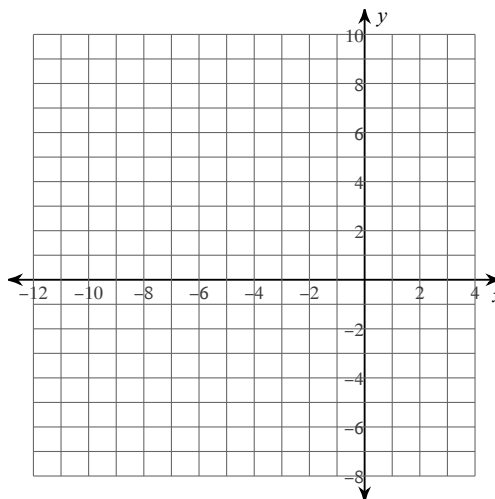
$$7) y = \frac{x^2 - 7x - 18}{-x + 9}$$



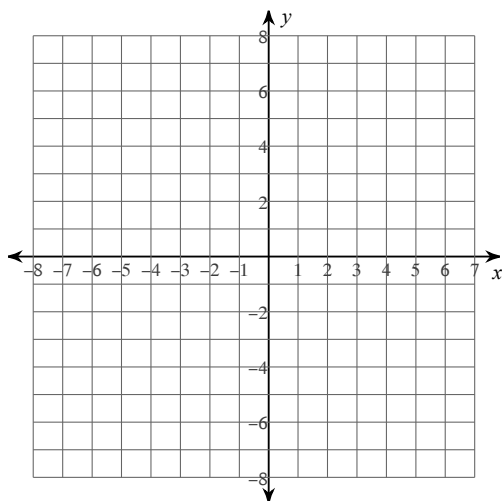
$$8) y = \frac{x + 2}{x^2 - 7x - 18}$$



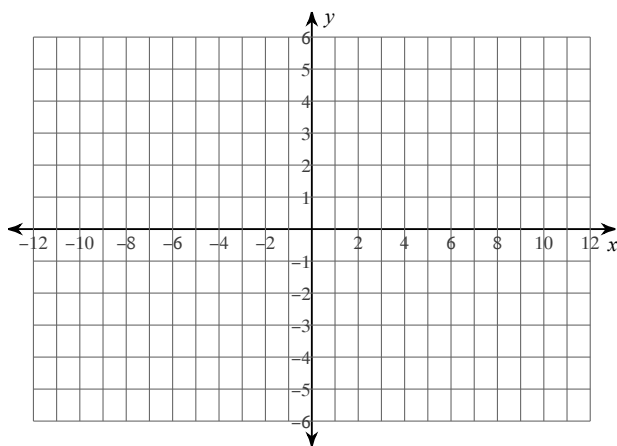
$$9) y = \frac{x - 10}{x^2 - 3x - 70}$$



$$10) y = \frac{x + 6}{x^2 + 10x + 24}$$



$$11) y = \frac{7 - x}{x^2 - 2x - 35}$$



Describe the end behavior for each function. (Hint: you may want to draw a quick sketch of each graph first.)

12) $f(x) = -x^5 + 3x^3 - 3x + 1$

As $x \rightarrow +\infty$, $y \rightarrow$ _____

As $x \rightarrow -\infty$, $y \rightarrow$ _____

13) $f(x) = -x^2 + 4x - 5$

As $x \rightarrow +\infty$, $y \rightarrow$ _____

As $x \rightarrow -\infty$, $y \rightarrow$ _____

14) $f(x) = x^3 + 7x^2 + 15x + 9$

As $x \rightarrow +\infty$, $y \rightarrow$ _____

As $x \rightarrow -\infty$, $y \rightarrow$ _____

15) $f(x) = x^4 - x^2 + 4$

As $x \rightarrow +\infty$, $y \rightarrow$ _____

As $x \rightarrow -\infty$, $y \rightarrow$ _____

16) $f(x) = -x^4 + 9x^2 + 7$

As $x \rightarrow +\infty$, $y \rightarrow$ _____

As $x \rightarrow -\infty$, $y \rightarrow$ _____

17) $f(x) = -x^7 - 8x^2 + 15x - 12$

As $x \rightarrow +\infty$, $y \rightarrow$ _____

As $x \rightarrow -\infty$, $y \rightarrow$ _____