Name : _____

MATH MONKS

End Behavior and Graphing Polynomials

Without graphing, identify the end behavior of the polynomial functions.

1. $f(x) = x^3 + 3x^2 - 5x - 4$

2. $f(x) = x^2 - 6x + 11$

3. $f(x) = x^2 - 8x + 18$

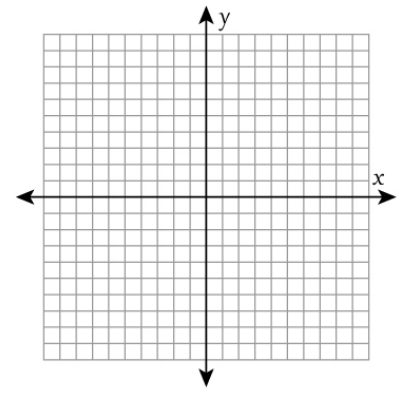
4. $f(x) = 8x^4 - 5x^2 + 14$

5. $f(x) = 3x^2 + 2$

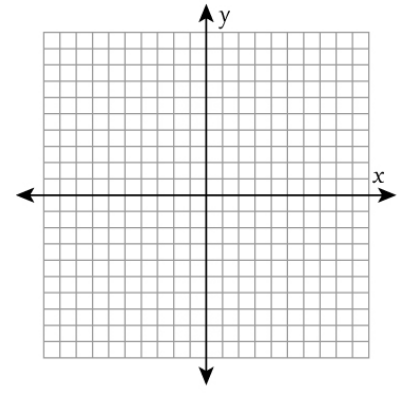
6. $f(x) = -5x + 2$

Solve and graph each of the following polynomial functions. Show your work.

7. $f(x) = 16x^4 - 73x^2 + 36$



8. $f(x) = -2 - 2x^3 - 6x^2 - 2x^6 - 15$



Name : _____

MATH MONKS

End Behavior and Graphing Polynomials

Answers

① $f(x) = x^3 + 3x^2 - 5x - 4$

$f(x) \to -\infty$ as $x \to \infty$,
$f(x) \to \infty$ as $x \to \infty$

② $f(x) = x^2 - 6x + 11$

$f(x) \to \infty$ as $x \to -\infty$,
$f(x) \to \infty$ as $x \to \infty$

③ $f(x) = x^2 - 8x + 18$

$f(x) \to \infty$ as $x \to -\infty$,
$f(x) \to \infty$ as $x \to \infty$

④ $f(x) = 8x^4 - 5x^2 + 14$

$f(x) \to \infty$ as $x \to -\infty$,
$f(x) \to \infty$ as $x \to \infty$

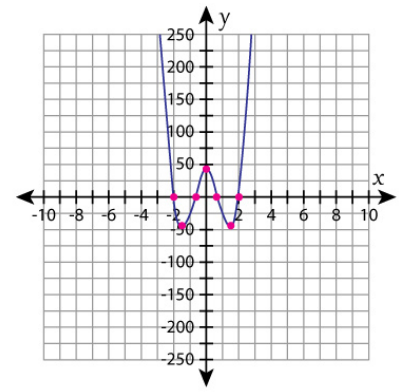
⑤ $f(x) = 3x^2 + 2$

$f(x) \to \infty$ as $x \to -\infty$,
$f(x) \to \infty$ as $x \to \infty$

⑥ $f(x) = -5x + 2$

$f(x) \to \infty$ as $x \to -\infty$,
$f(x) \to -\infty$ as $x \to \infty$

⑦ $f(x) = 16x^4 - 73x^2 + 36$



⑧ $f(x) = -2 - 2x^3 - 6x^2 - 2x^6 - 15$