

Important Information:

Degree?

Use $-3x^2 + 4x - 1$ to help with understanding the terms

Standard Form?

Leading Term?

Leading Coefficient?

Local Extrema?

Absolute Extrema?

Part A: Determine if f is odd, even, or neither

1. $f(x) = x + 3$

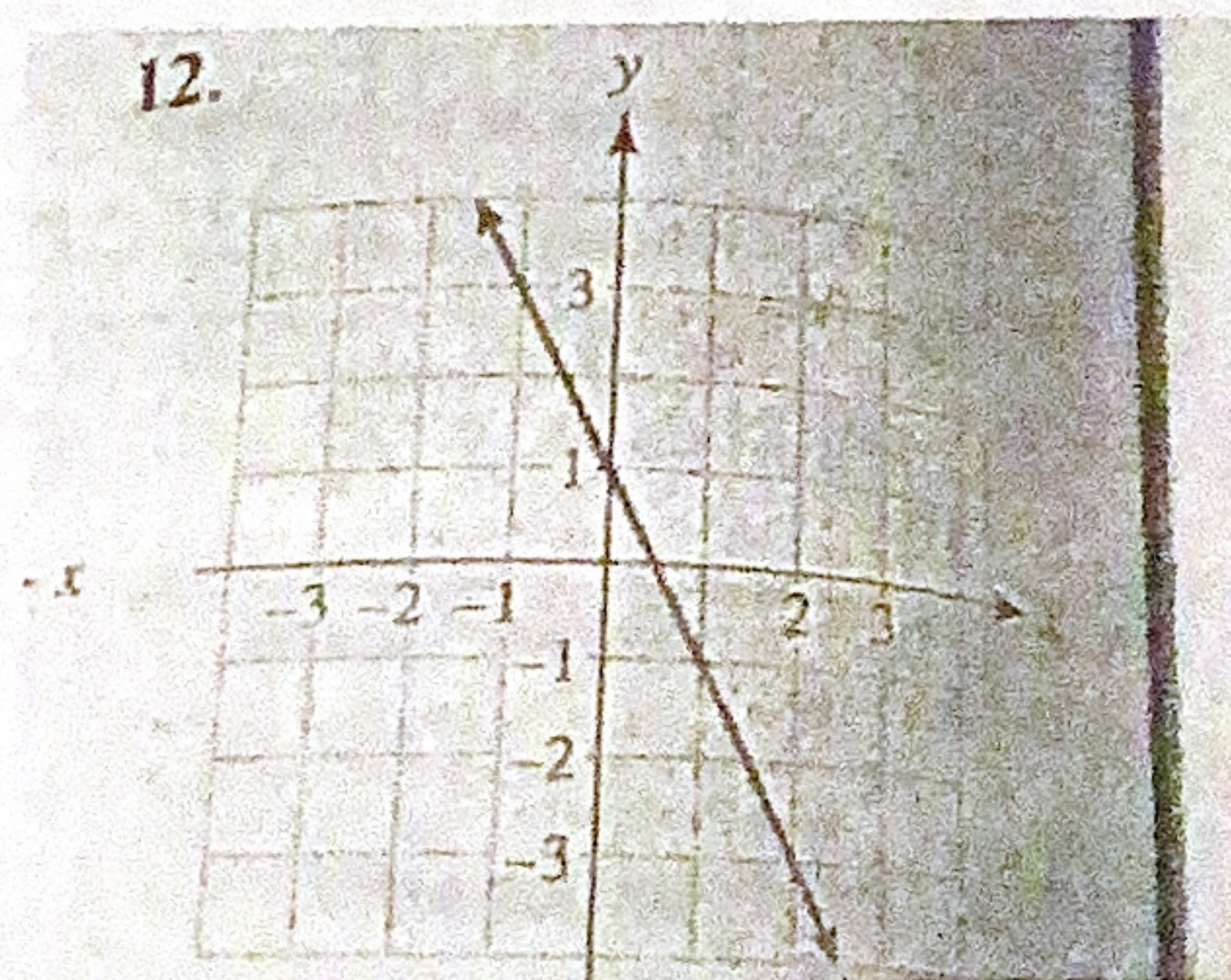
2. $f(x) = -x^6 + 5x^2$

3. $f(x) = \sqrt{1 - x^2}$

Part B: Fill in the table

1.

12.



Turning Points

Estimate x - intercepts

Whether $a > 0$ or $a < 0$

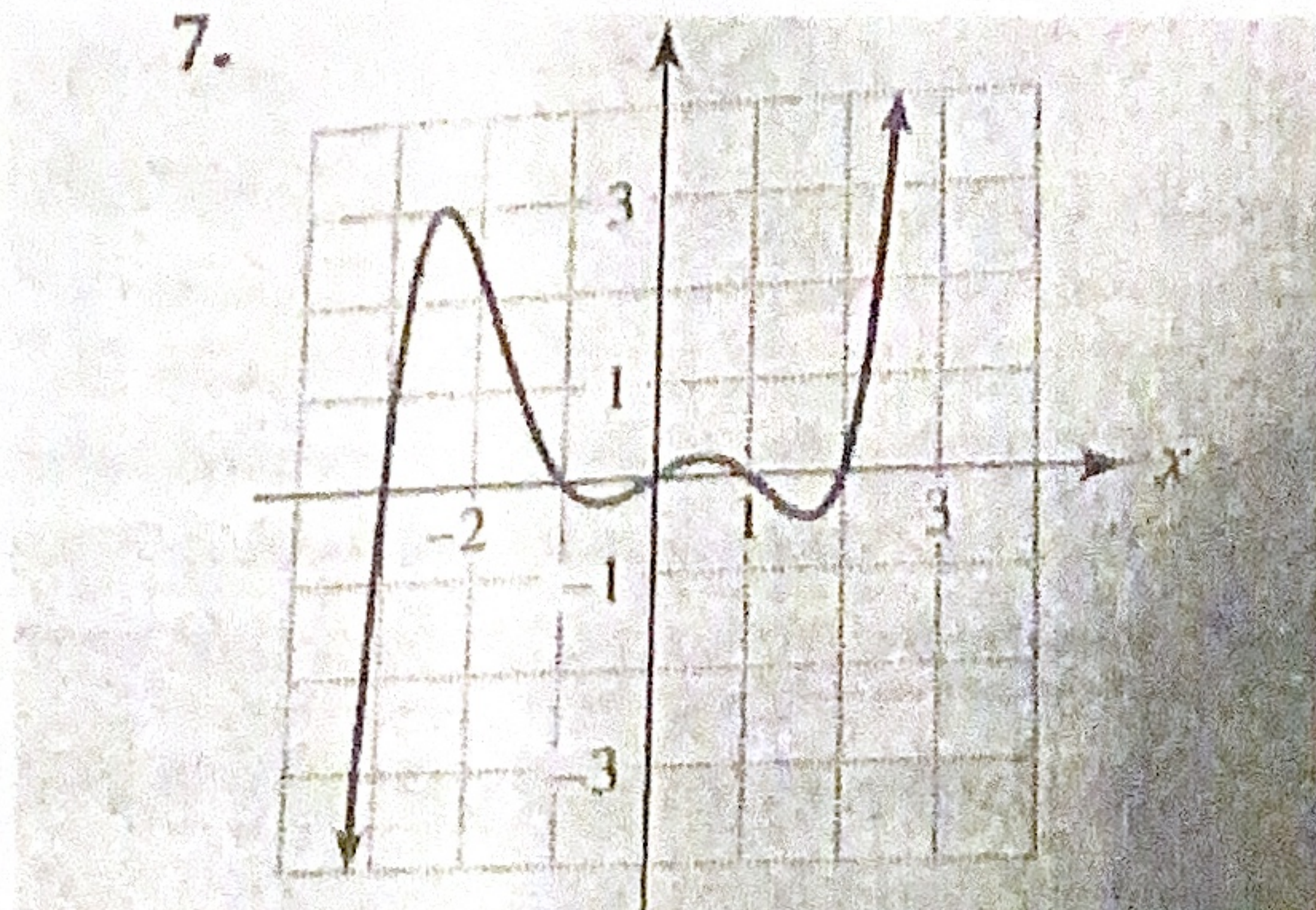
Local extrema

Absolute extrema

End Behavior

2.

7.



Turning Points

Estimate x-intercepts

Whether $a > 0$ or $a < 0$

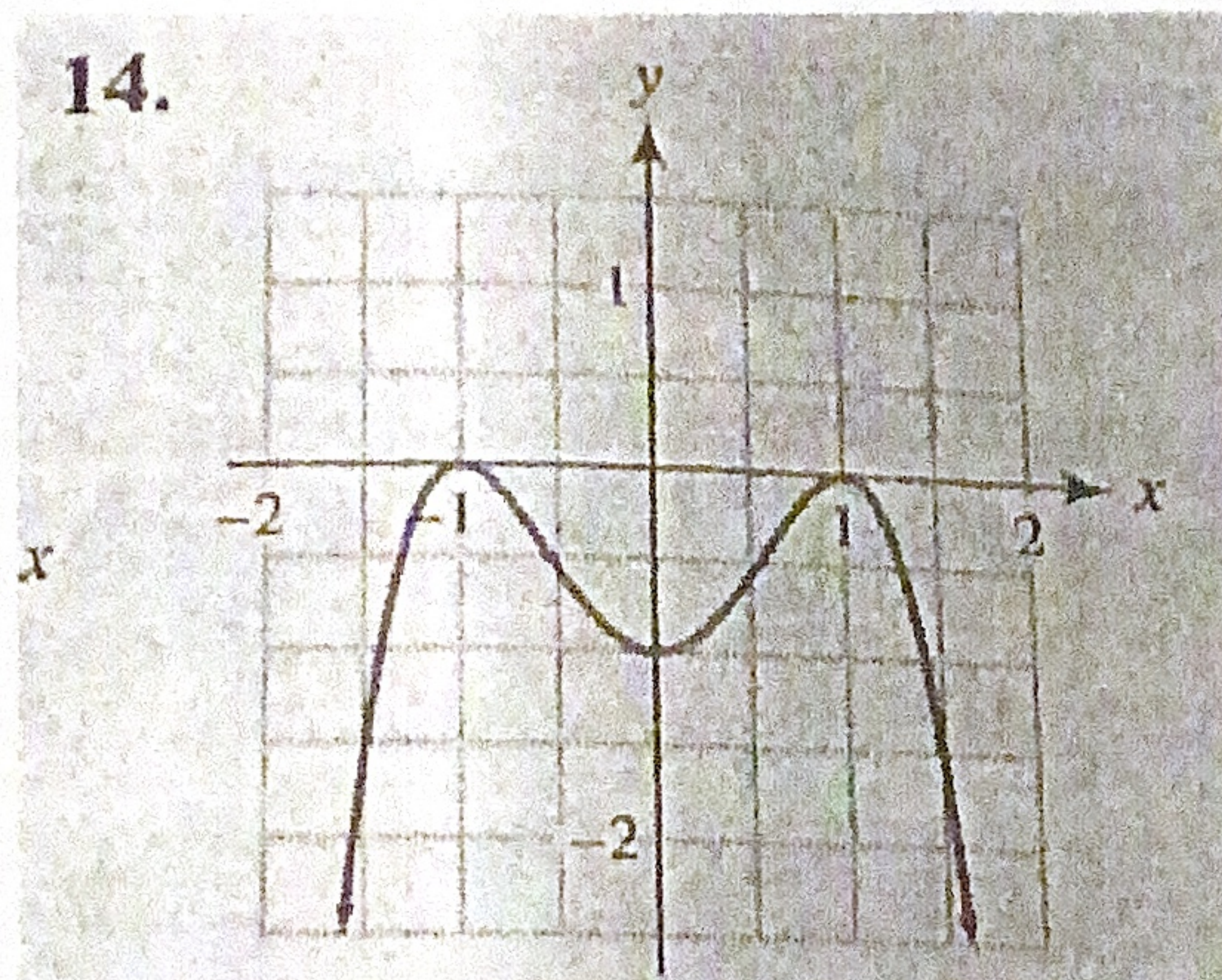
Local extrema

Absolute extrema

End Behavior

3.

14.



Turning Points

Estimate x - intercepts

Whether $a > 0$ or $a < 0$

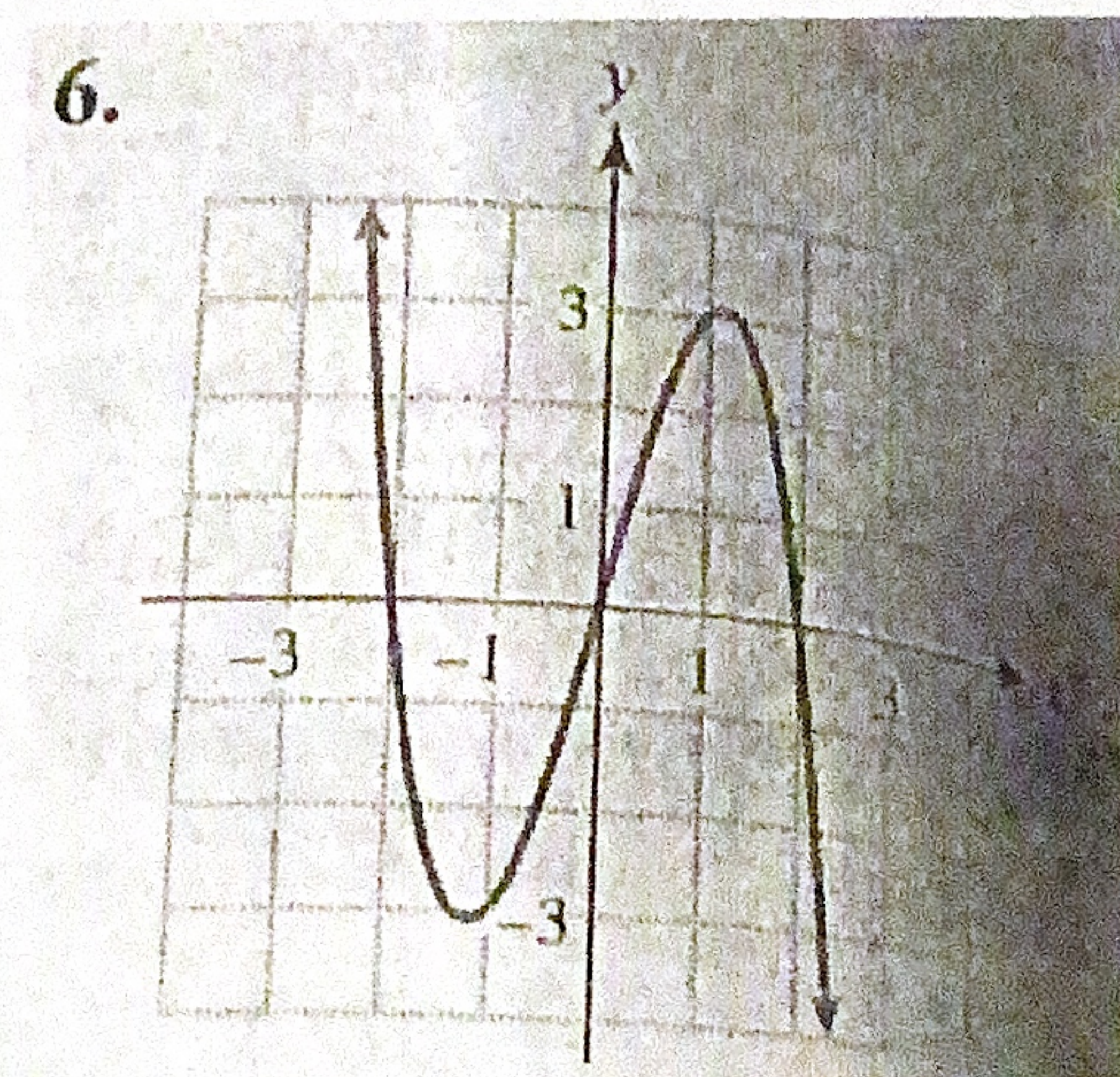
Local extrema

Absolute extrema

End Behavior

4.

6.



Turning Points

Estimate x - intercepts

Whether $a > 0$ or $a < 0$

Local extrema

Absolute Extrema

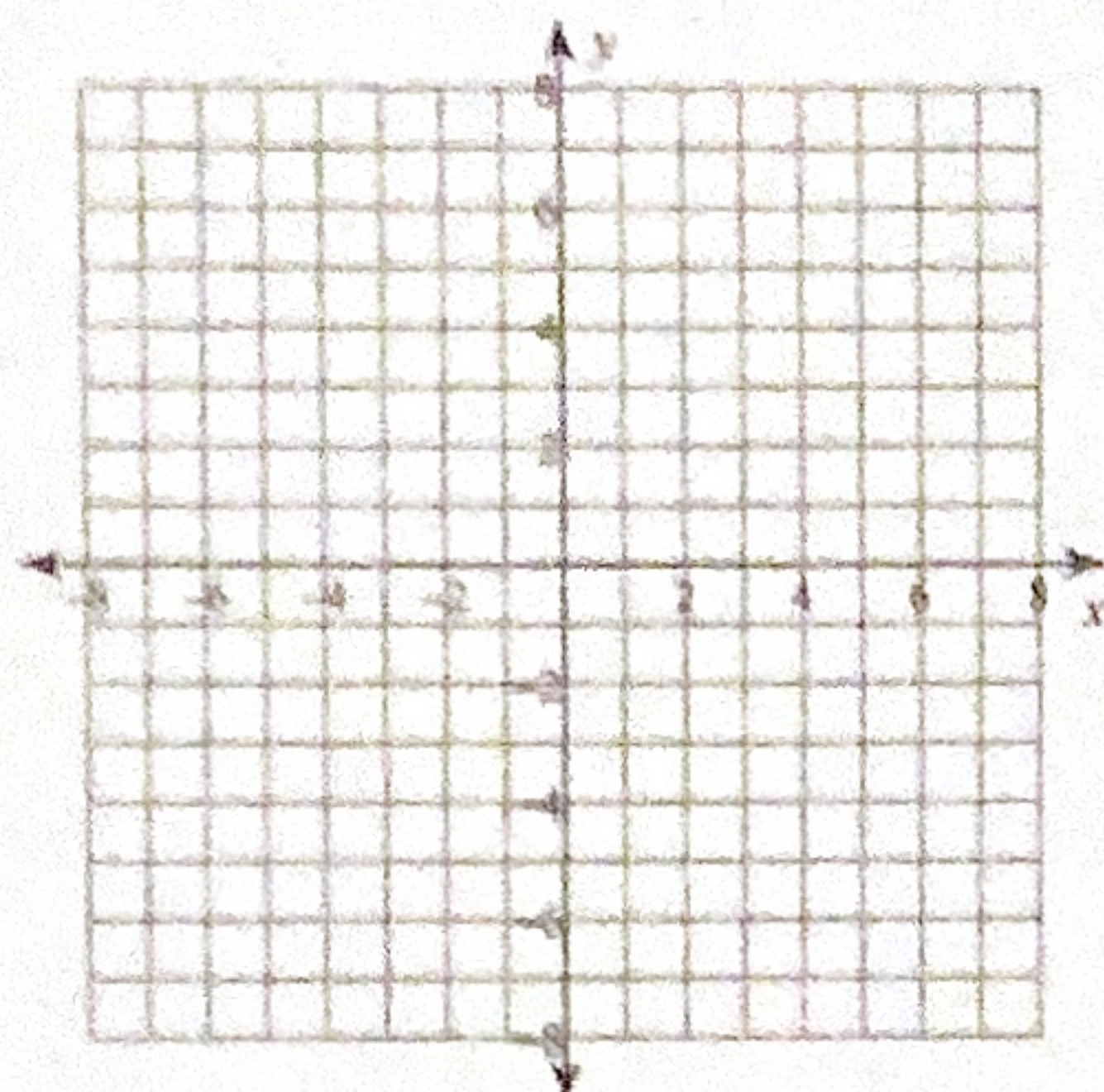
End Behavior

Graphing Polynomial Functions

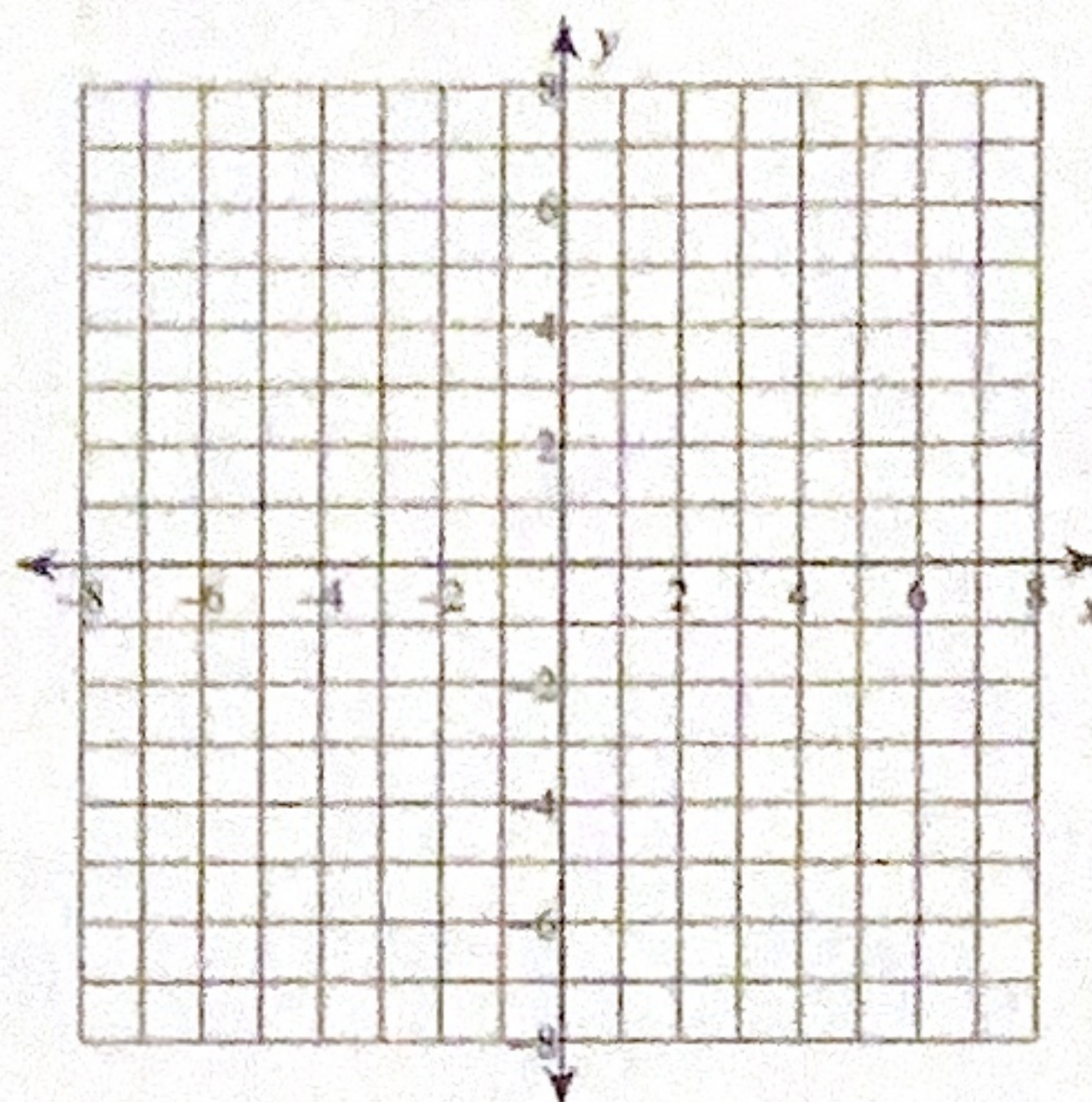
Date _____ Period _____

State the maximum number of turns the graph of each function could make. Then sketch the graph. State the number of real zeros. Approximate each zero to the nearest tenth. Approximate the relative minima and relative maxima to the nearest tenth.

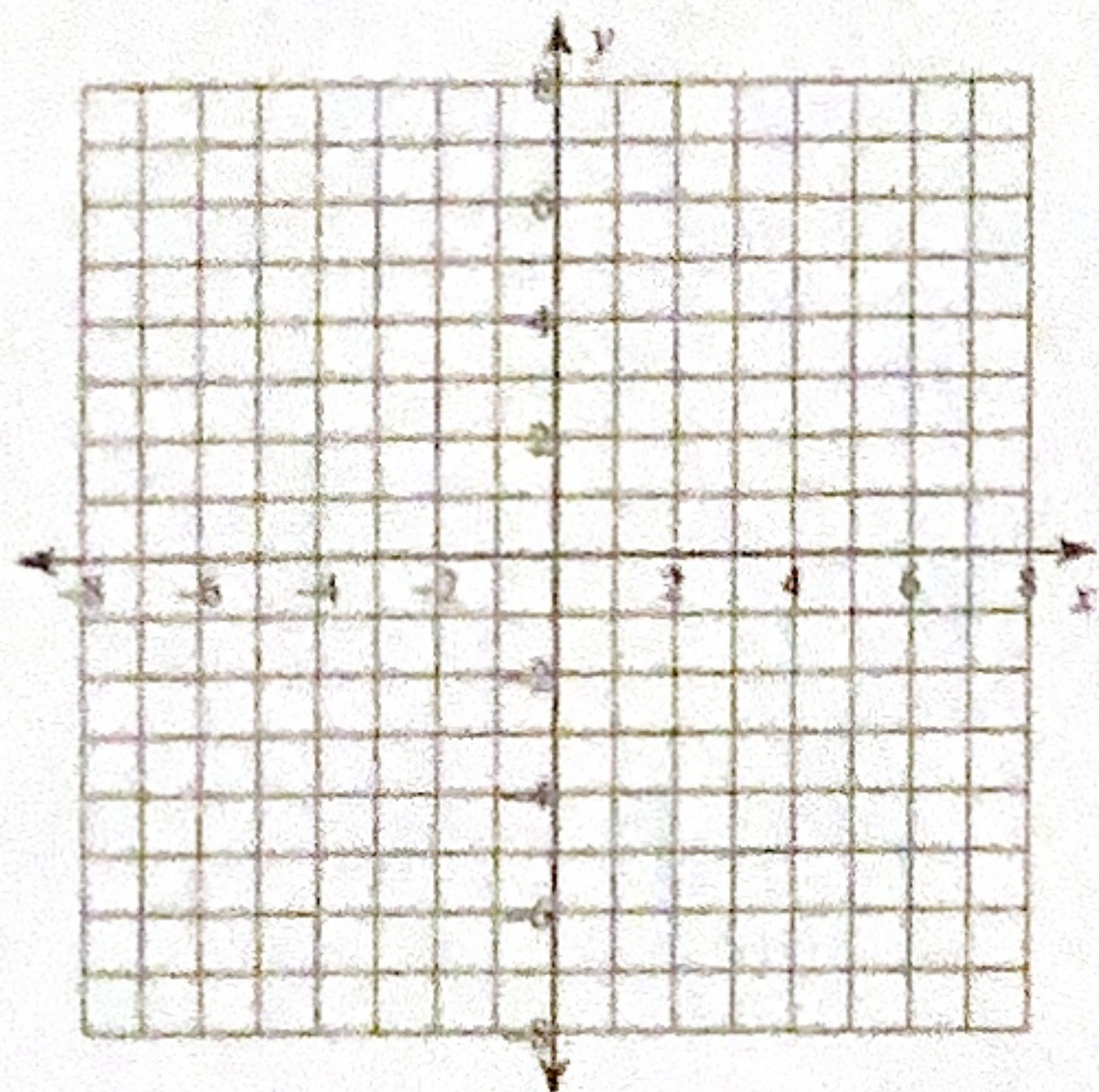
1) $f(x) = x^2 + 2x - 5$



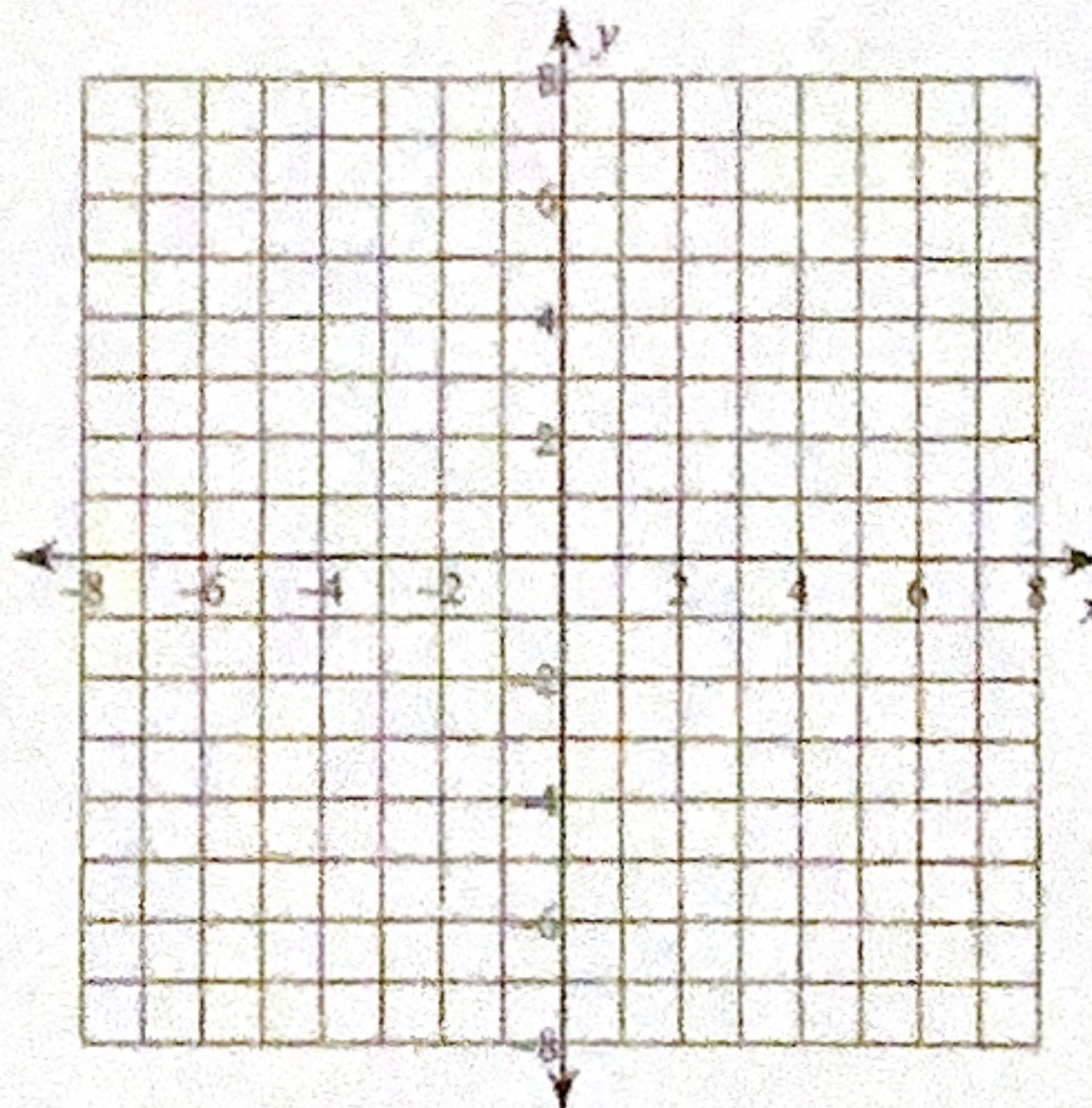
2) $f(x) = -x^4 + x^3 + 2x^2$



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



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



SI SESSION

Divide the polynomials.

1.
$$\frac{x^4 - 3x^3 - x + 3}{x - 3}$$

If missing a placeholder?

For long division, use the three-step method:

- 1.
- 2.
- 3.

2.
$$\frac{3x^3 + 11x^2 + 9x - 5}{x + 2}$$

3. $\frac{15x^3+37x^2+53x+55}{3x+5}$

4. $\frac{20x^4+6x^3-2x^2+15x-2}{5x-1}$

SI SESSION

NEED TO KNOW:

What does it mean to have an asymptote?

What does it mean to have a hole?

How to find vertical asymptotes and how is it represented?

How to find horizontal asymptotes and how is it represented?

How to find slant asymptotes and how is it represented?

How to find holes and how is it represented?

How to find the domain?

Part A: Find the horizontal and vertical asymptotes

1. $f(x) = \frac{x^2-9}{x+3}$

2. $f(x) = \frac{x+6}{5-2x}$

$$3. f(x) = \frac{4x}{2x-6}$$

$$4. f(x) = \frac{x^4+1}{x^2+3x-10}$$

Part B: Find the slant and vertical asymptote

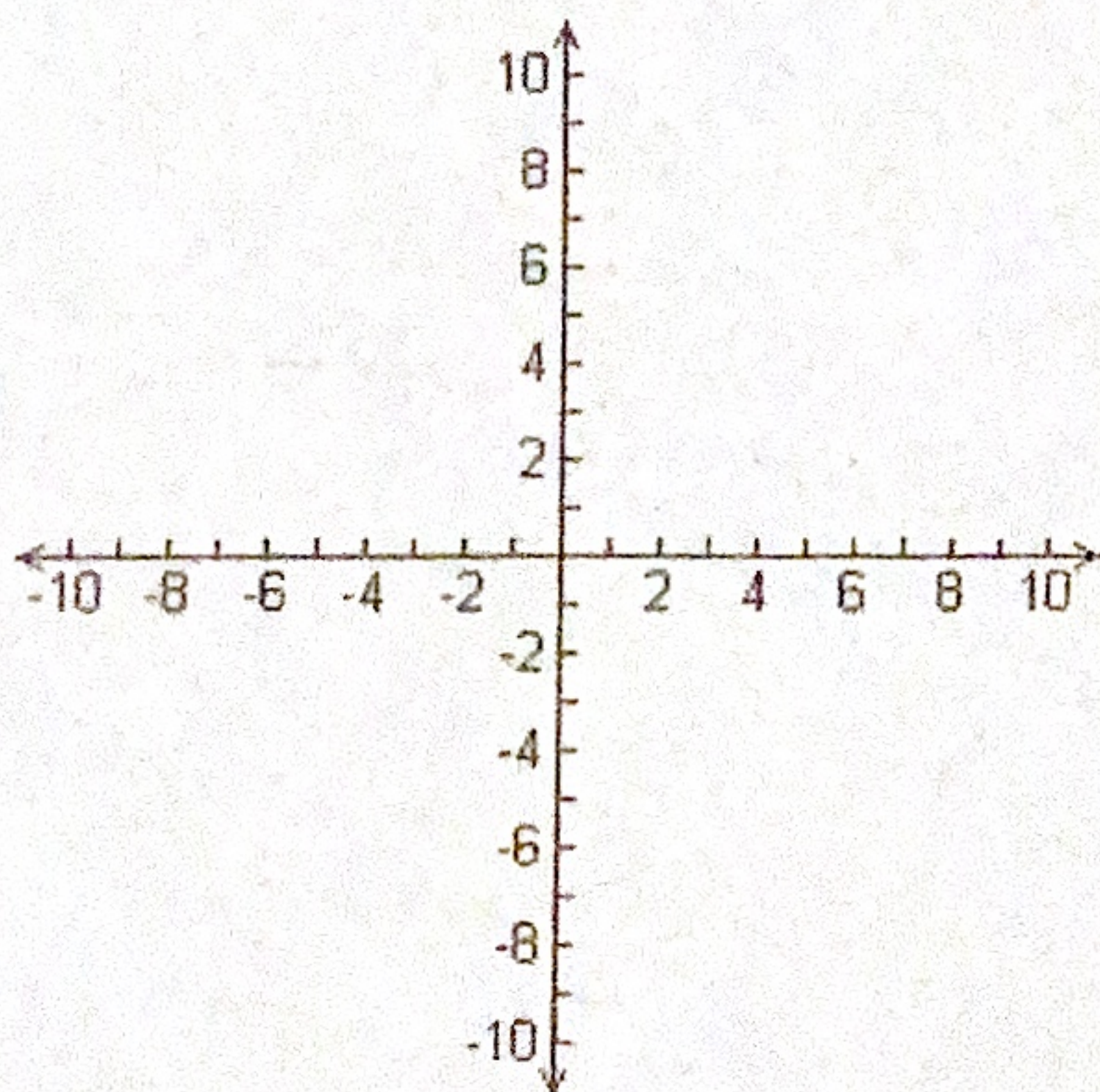
$$1. f(x) = \frac{2x^2-5x-2}{x-2}$$

$$2. f(x) = \frac{4x^2}{2x-1}$$

$$3. f(x) = \frac{2x^2+3x+1}{x-2}$$

Part C: Graph the function and fill in the blanks

$$1. f(x) = \frac{x^2-2x+1}{x-1}$$



x-intercepts:

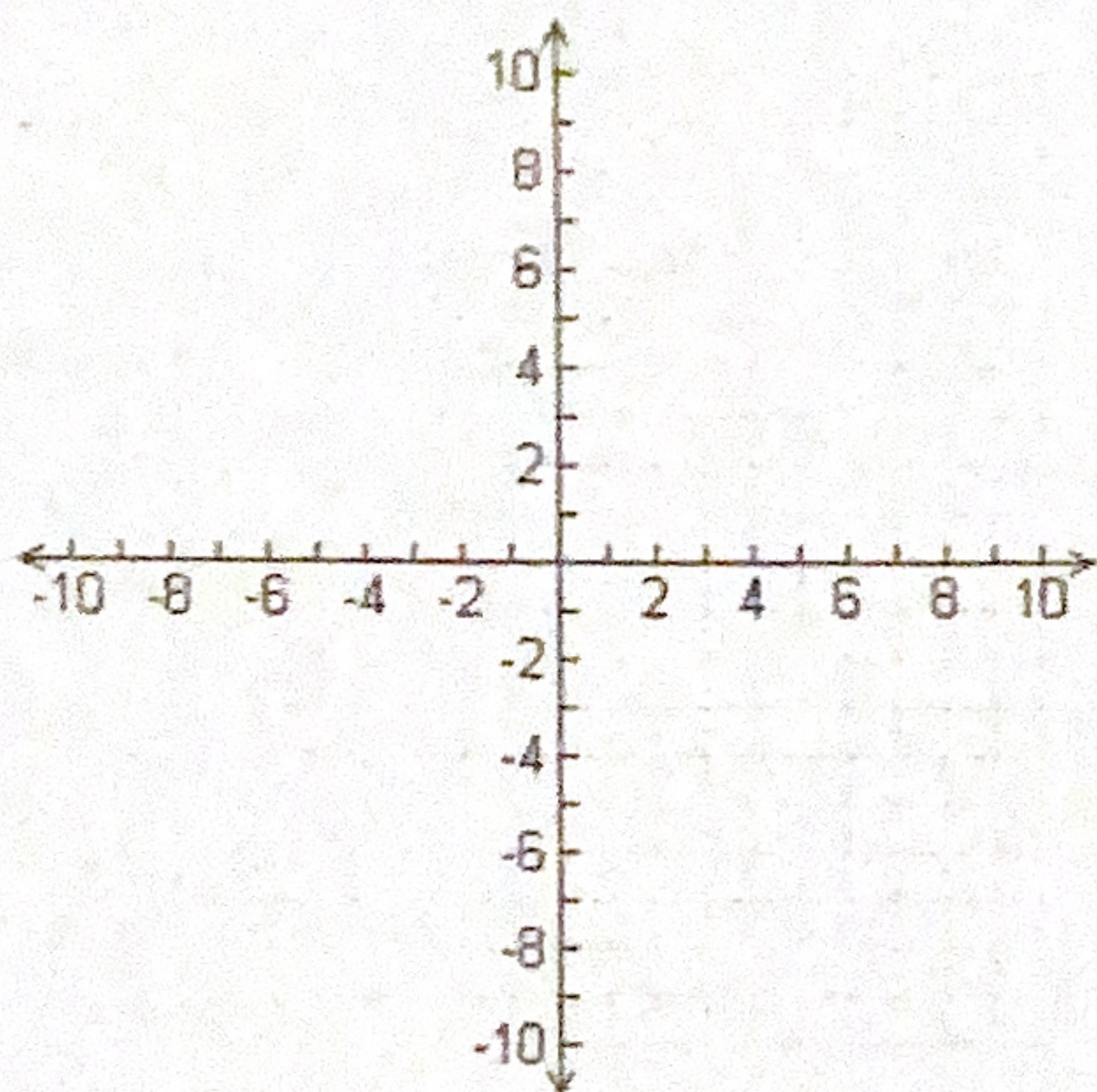
y-intercepts:

vertical asymptotes:

horizontal asymptotes:

holes:

2. $f(x) = \frac{x^2 - x - 2}{x^2 - 2x - 3}$



x-intercepts:

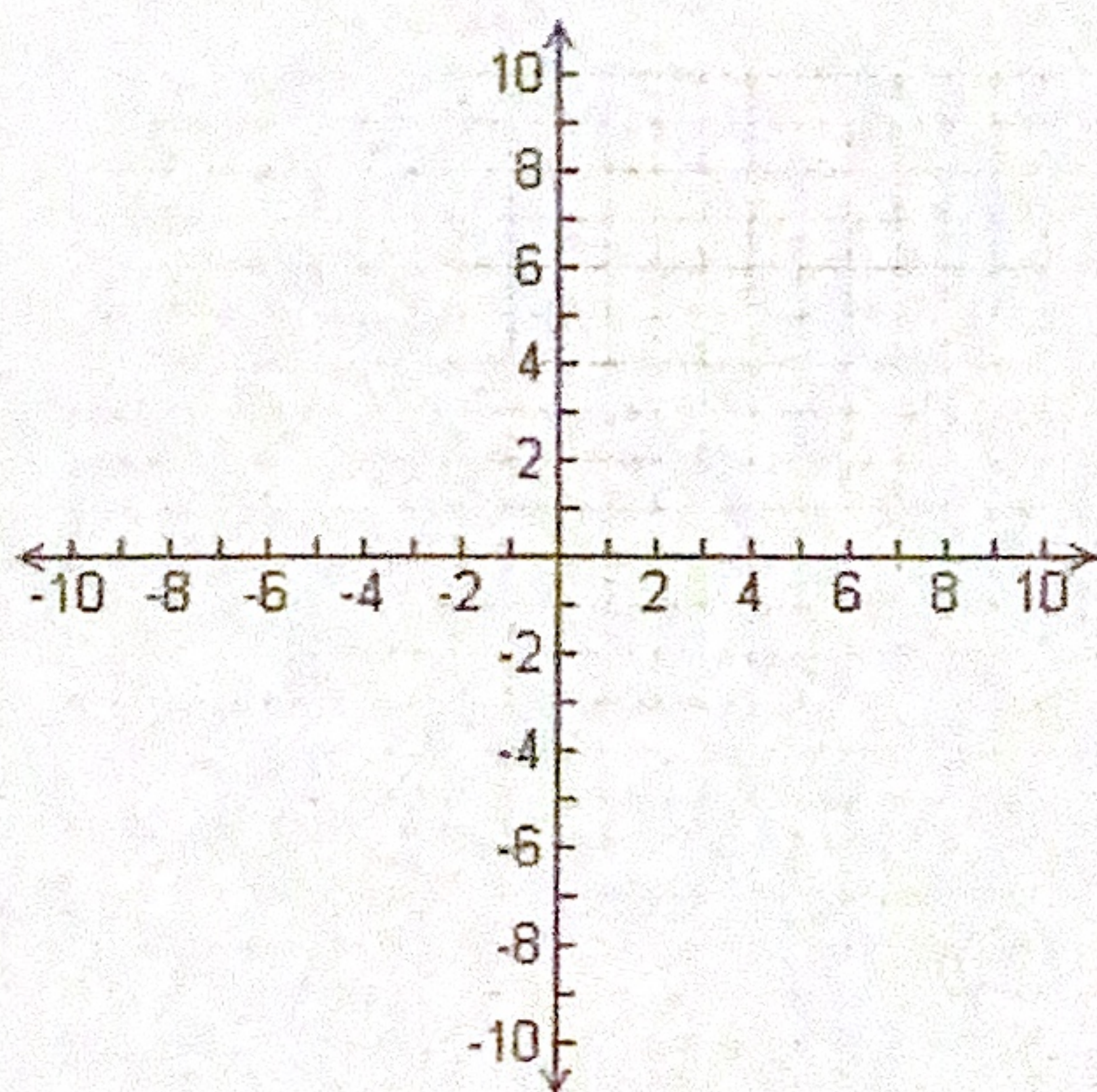
y-intercepts:

vertical asymptotes:

horizontal asymptotes:

holes:

3. $f(x) = \frac{2x^2 - 3x - 14}{x^2 - 2x - 8}$



x-intercepts:

y-intercepts:

vertical asymptotes:

horizontal asymptotes:

holes: