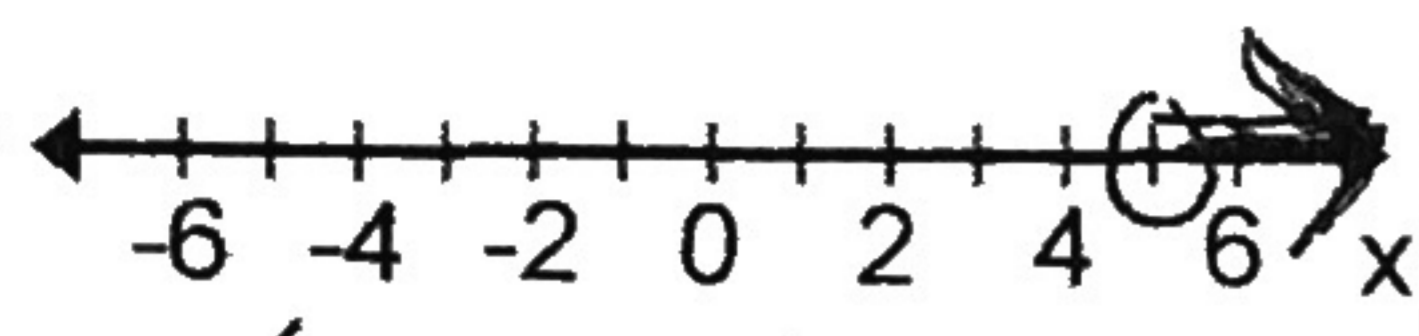
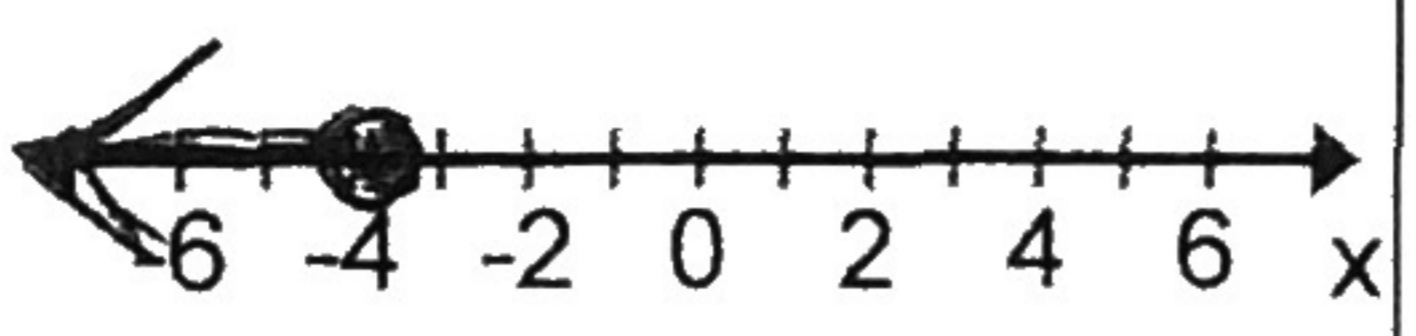
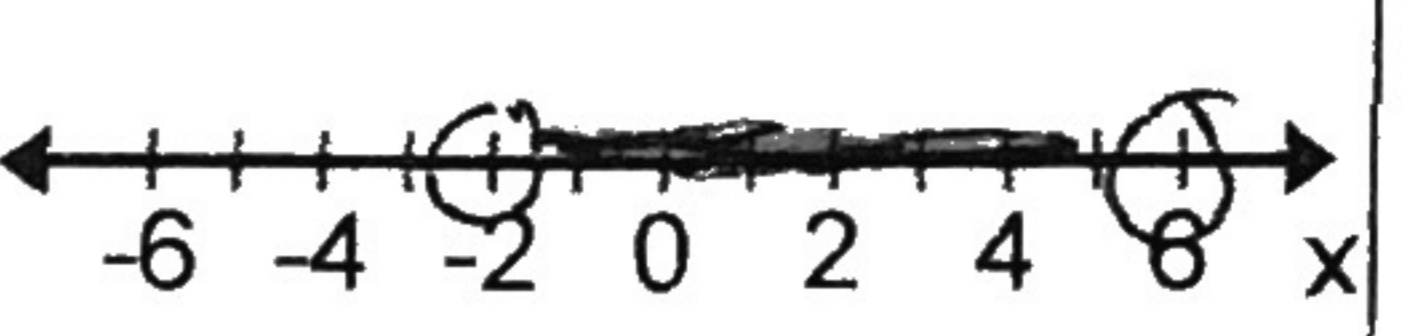
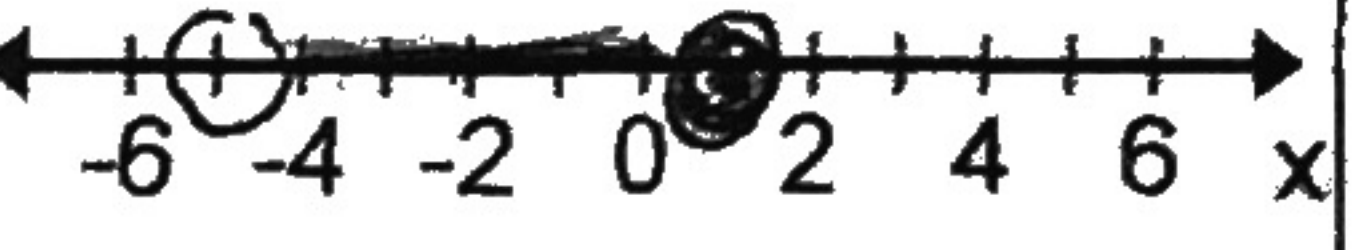
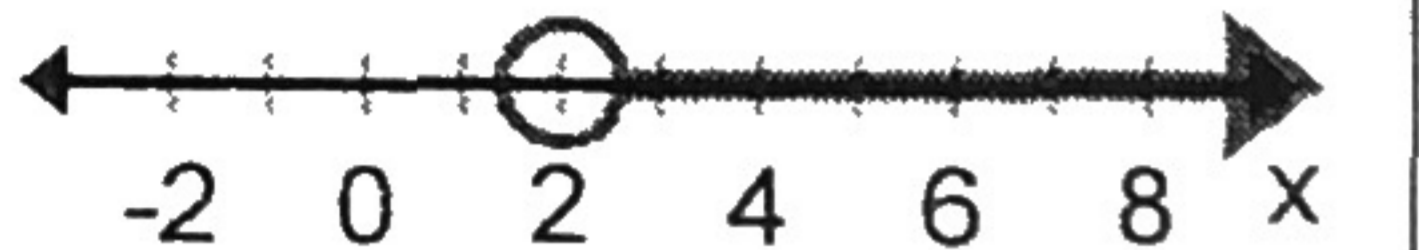

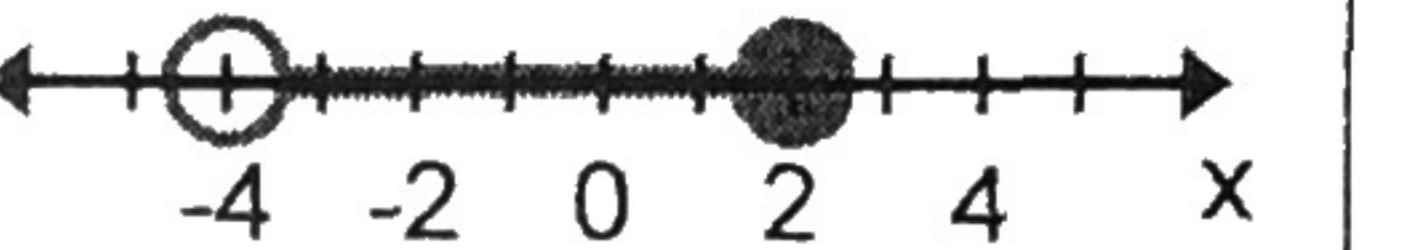



#1 Algebra Review Domain & Range, Simplify and Factor Expressions, and Function Notation

Write each in INTERVAL notation and graph on the number line.

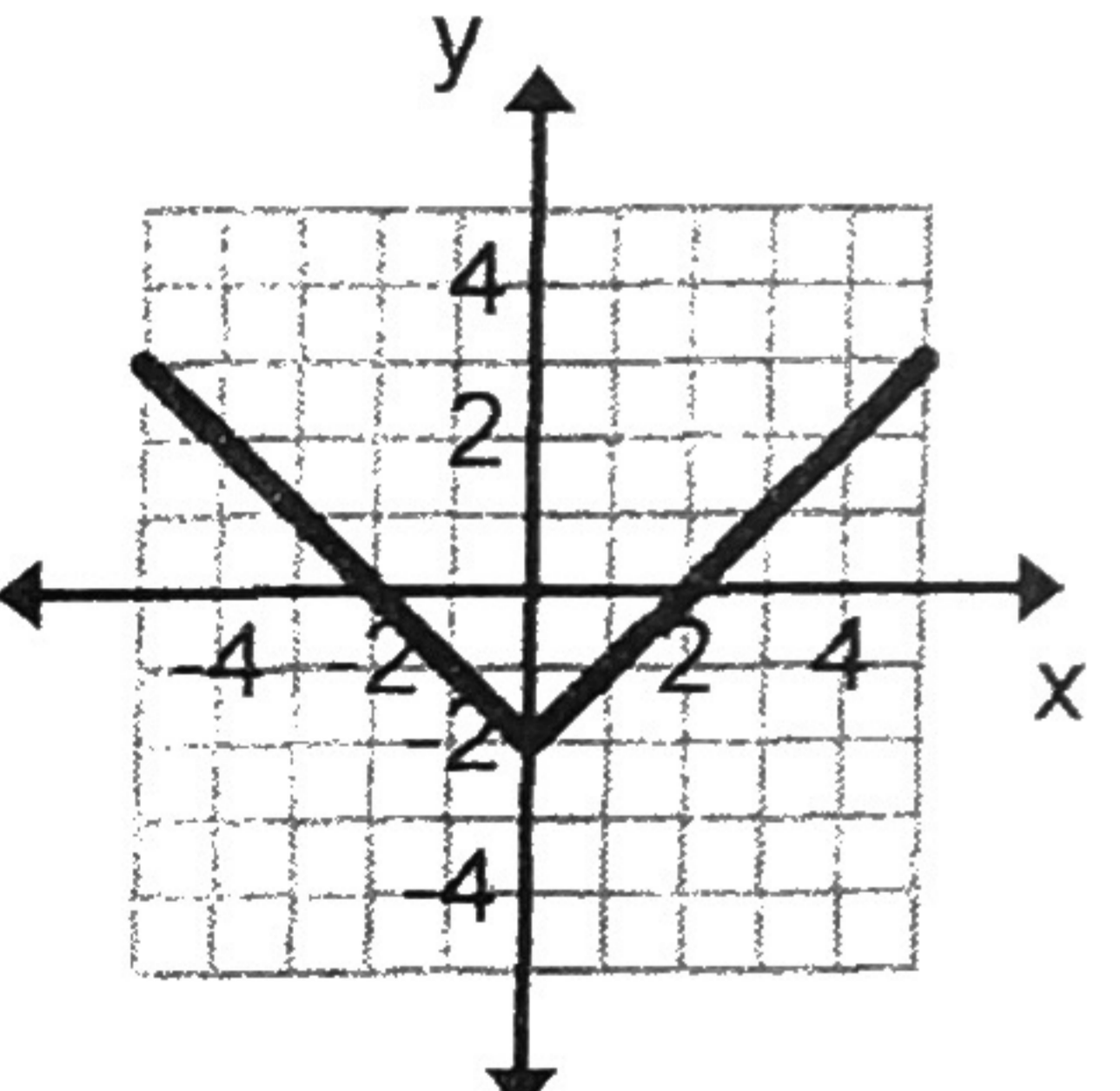
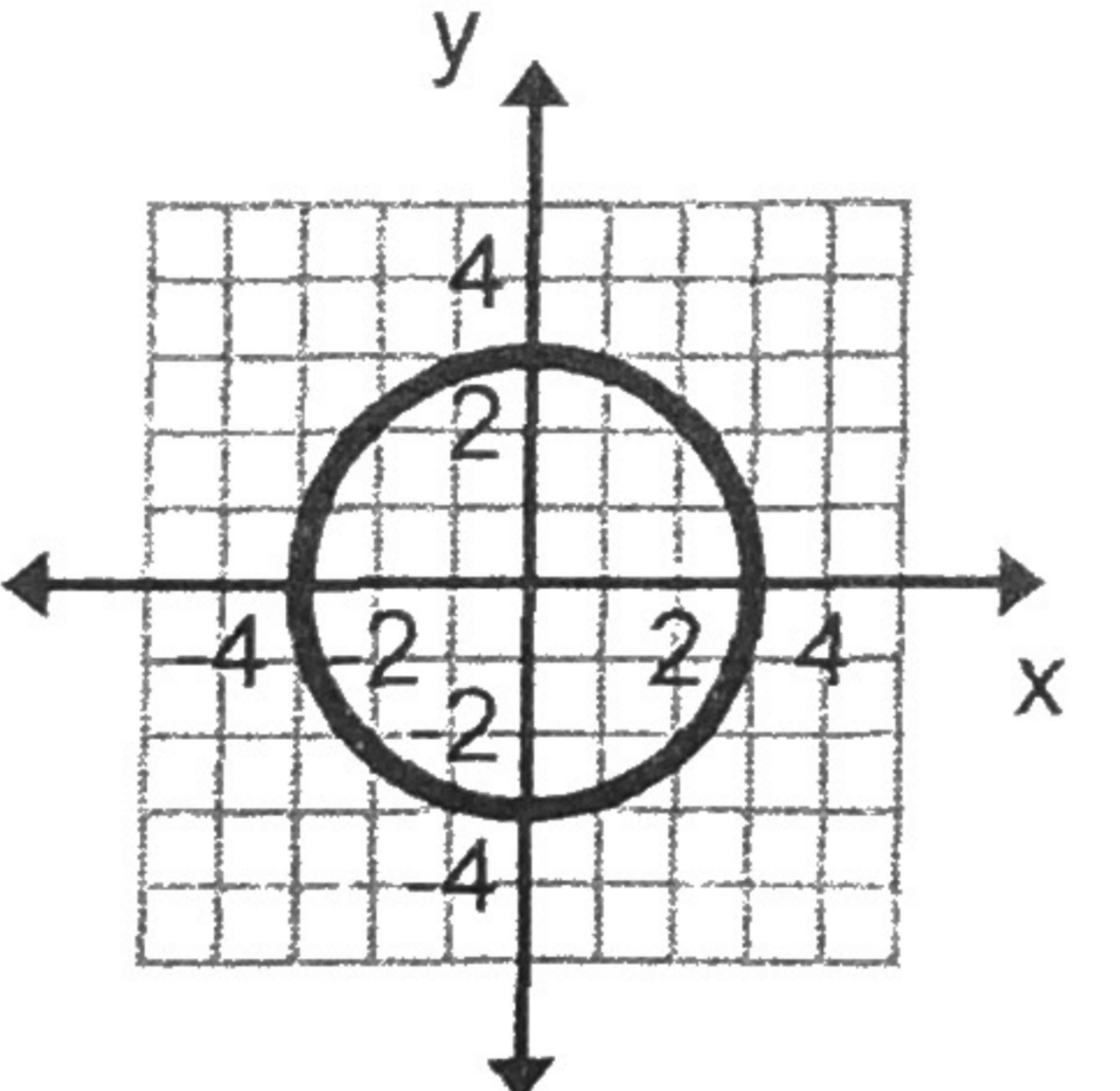
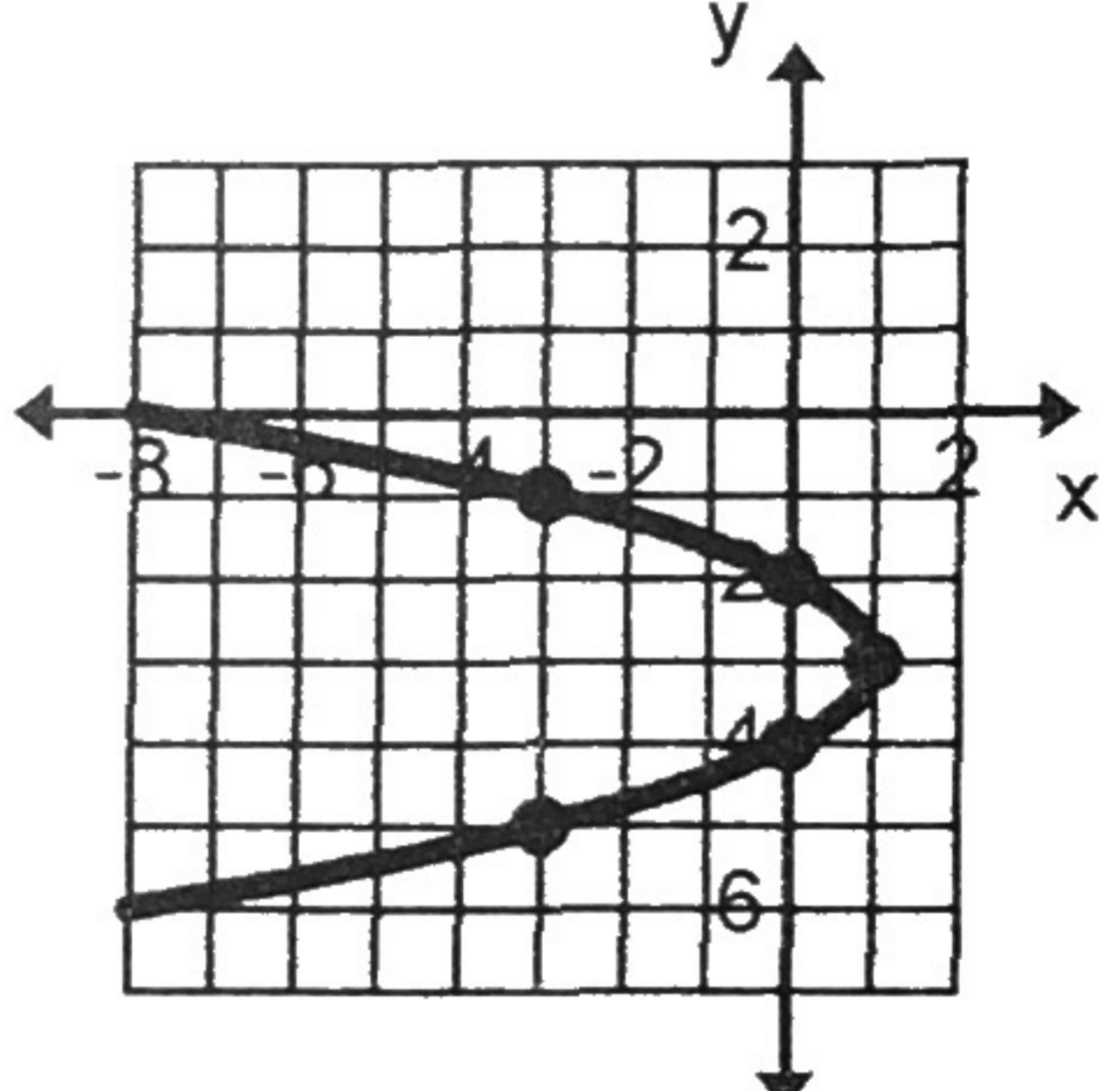
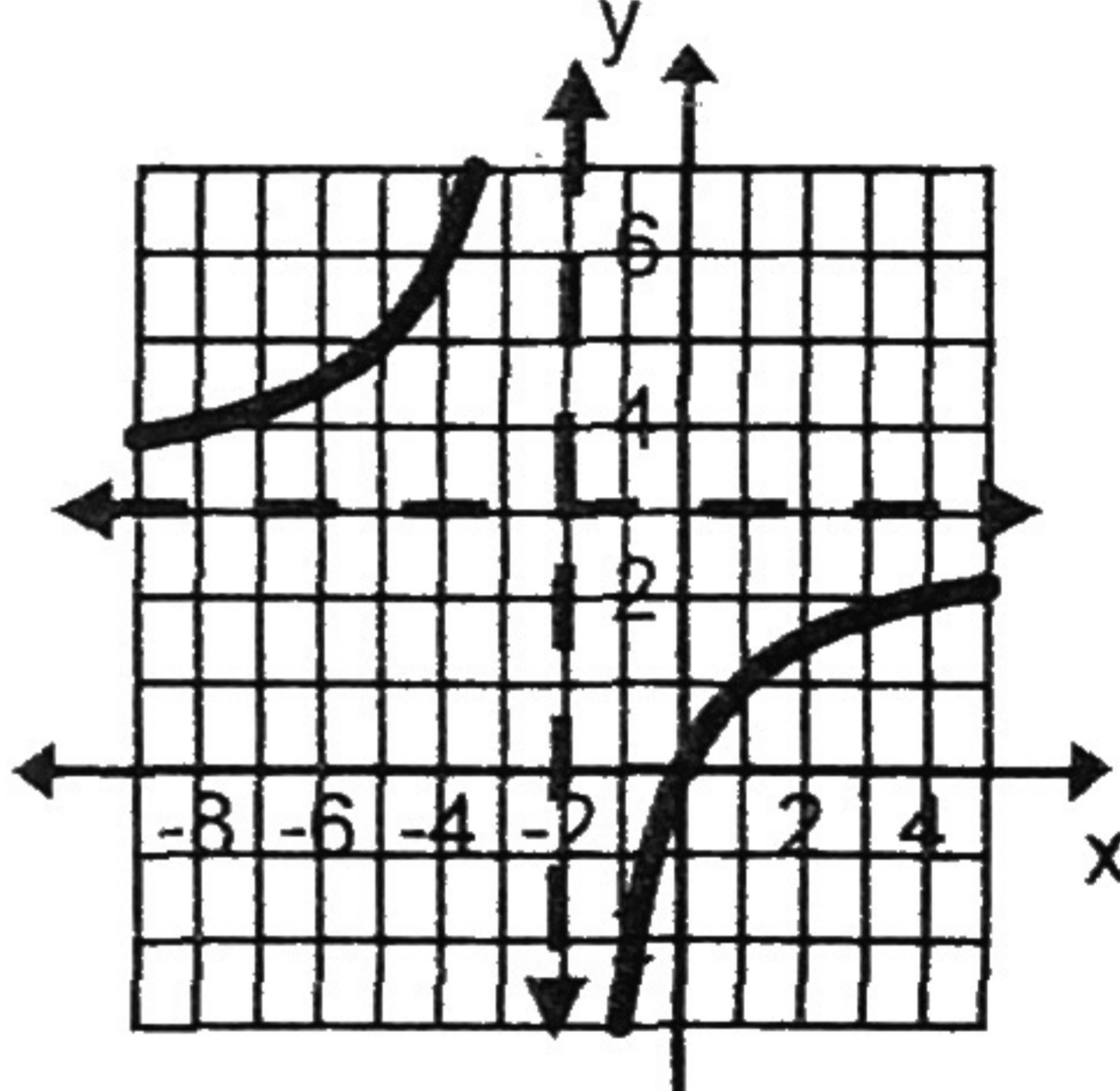
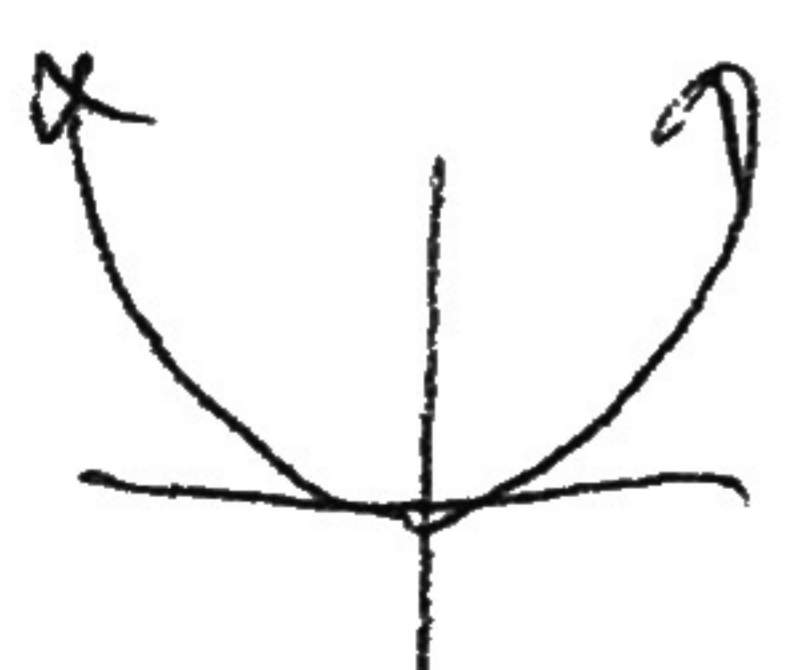
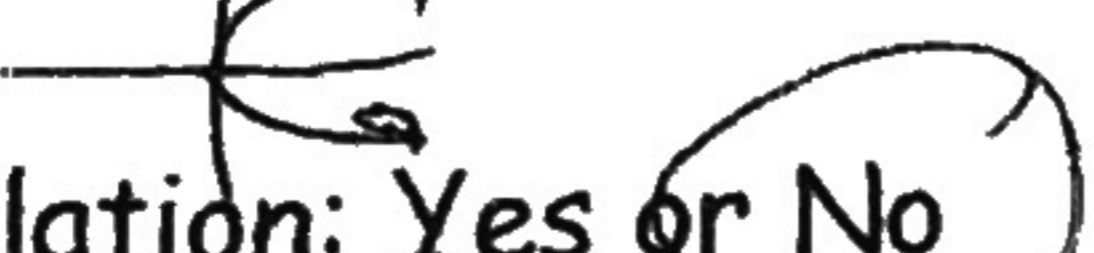


<p>1. $x > 5$</p>  <p><u>$(5, \infty)$</u></p>	<p>2. $x \leq -4$</p>  <p><u>$(-\infty, -4]$</u></p>	<p>3. $-2 < x < 6$</p>  <p><u>$(-2, 6)$</u></p>	<p>4. $-5 < x \leq 1$</p>  <p><u>$(-5, 1]$</u></p>
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Write each in INTERVAL (I) notation and SET (S) notation.

<p>5.</p>  <p>I: <u>$(2, \infty)$</u> S: <u>$x > 2$</u></p>	<p>6.</p>  <p>I: <u>$(-\infty, 2]$</u> S: <u>$x \leq 2$</u></p>	<p>7.</p>  <p>I: <u>$(-4, 2]$</u> S: <u>$-4 < x \leq 2$</u></p>	<p>8.</p>  <p>I: <u>$[0, 5]$</u> S: <u>$0 \leq x \leq 5$</u></p>
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Determine whether each relation represents y as a function of x .

Give the Domain and Range in interval notation.

<p>9.</p>  <p>Relation: <u>Yes</u> or No Domain: <u>$(-\infty, \infty)$</u> Range: <u>$[-2, \infty)$</u></p>	<p>10.</p>  <p>Relation: Yes or <u>No</u> Domain: <u>$[-3, 3]$</u> Range: <u>$[-3, 3]$</u></p>	<p>11.</p>  <p>Relation: Yes or <u>No</u> Domain: <u>$(-\infty, 1]$</u> Range: <u>$(-\infty, \infty)$</u></p>	<p>12.</p>  <p>Relation: <u>Yes</u> or No Domain: <u>$(-\infty, -2) \cup (2, \infty)$</u> Range: <u>$(-\infty, 3) \cup (3, \infty)$</u></p>
<p>13. $y = x^2$</p>  <p>Relation: <u>Yes</u> or No Domain: <u>$(-\infty, \infty)$</u> Range: <u>$[0, \infty)$</u></p>	<p>14. $x = y^2$</p> <p>IF $x = 4$ $4 = y^2$ (2, 4) $\pm 2 = y$ (-2, 4)</p>  <p>Relation: Yes or <u>No</u> Domain: <u>$[0, \infty)$</u> Range: <u>$(-\infty, \infty)$</u></p>	<p>15. $y = x$</p>  <p>Relation: <u>Yes</u> or No Domain: <u>$(-\infty, \infty)$</u> Range: <u>$[0, \infty)$</u></p>	<p>16. $y = \sqrt{x}$</p>  <p>Relation: <u>Yes</u> or No Domain: <u>$[0, \infty)$</u> Range: <u>$[0, \infty)$</u></p>

Given the following functions, find each. SHOW YOUR WORK!!

$f(x) = 3x + 1$ $g(x) = (x - 1)^2$	17. $f(-3) =$ $3(-3) + 1$ $-9 + 1$ -8	18. $g(-2) =$ $(-2 - 1)^2 = (-3)^2$ 9	19. $h(-1) =$ -2
$j(x) = x - 4$ $h(x)$	20. $f(2x) =$ $3(2x) + 1$ $6x + 1$	21. $g(a+1) =$ $(a+1-1)^2 = a^2$	22. $g(a+5) =$ $(a+5-1)^2 =$ $(a+4)^2 =$ $a^2 + 8a + 16$
	23. $g(3) + h(1)$ $(3-1)^2 + 4$ $4 + 4 =$ 8	24. $f(3) \cdot g(-2)$ $(3 \cdot 3 + 1) + (-2 - 1)^2$ $10 + 9$ 19	25. $f(x) + j(x)$ $(3x+1) + (x-4)$ $4x - 3$
	26. $2f(x) - 3j(x)$ $2(3x+1) - 3(x-4)$ $6x+2 - 3x+12$ $3x+14$	27. $f(x) \cdot j(x)$ $(3x+1)(x-4)$ $3x^2 - 11x - 4$	28. $[f(x)]^2 =$ $(3x+1)^2 =$ $9x^2 + 6x + 1$

Factor Completely:

29. $14x^3 - 7x^2$ $7x^2(2x - 1)$	30. $-16x^3 + 32x^2$ $-16x^2(x - 2)$	31. $x^2 - 49$ $(x + 7)(x - 7)$
32. $3x^2 - 27$ $3(x^2 - 9)$ $3(x+3)(x-3)$	33. $x^2 - 5x - 24$ $(x - 8)(x + 3)$	34. $x^2 + 10x + 24$ $(x + 6)(x + 4)$
35. $x^2 - 13x + 12$ $(x - 12)(x - 1)$	36. $2x^2 + 7x + 6$ $(2x + 3)(x + 2)$	37. $6x^2 - x - 15$ $(3x - 5)(2x + 3)$