

SI Worksheet 8

Polynomial and Rational Inequalities

- 1) $\frac{1}{2}(3 + 4x) \leq 6(\frac{1}{3} - \frac{1}{2}x) - \frac{1}{4}(2 + 10x)$
- 2) $x^2 - 5x \geq 143 - 3x$
- 3) $\frac{x^2-10x+25}{x^2-10x+24} \div \frac{x-5}{x-1} > 1$

Domain and Range

- 4) $m(n) = 7n^3 + n^2 - 2$
- 5) $x(t) = 3\sqrt{4t - 8}$
- 6) $f(x) = \frac{5x^2+40x}{x^2+5x-6}$

Function Evaluation

- 7) If $f(x) = \frac{1}{3x^2}$, $g(x) = \sqrt{(x-3)(x-4)}$, and $h(x) = x + 2$, evaluate $f(g(h(3)))$.

Completing the Square

- 8) $4x^2 - 8x - 32 = 0$
- 9) $x^2 - 4x + 1 = 0$

Polynomial Division

- 10) $\frac{3x^4-5x^2+3}{x+2}$
- 11) $\frac{2x^5+x^4-6x+9}{x^2-3x+1}$

Graphing Transformations

- 12) Graph $2x^2 + 4x + 6$

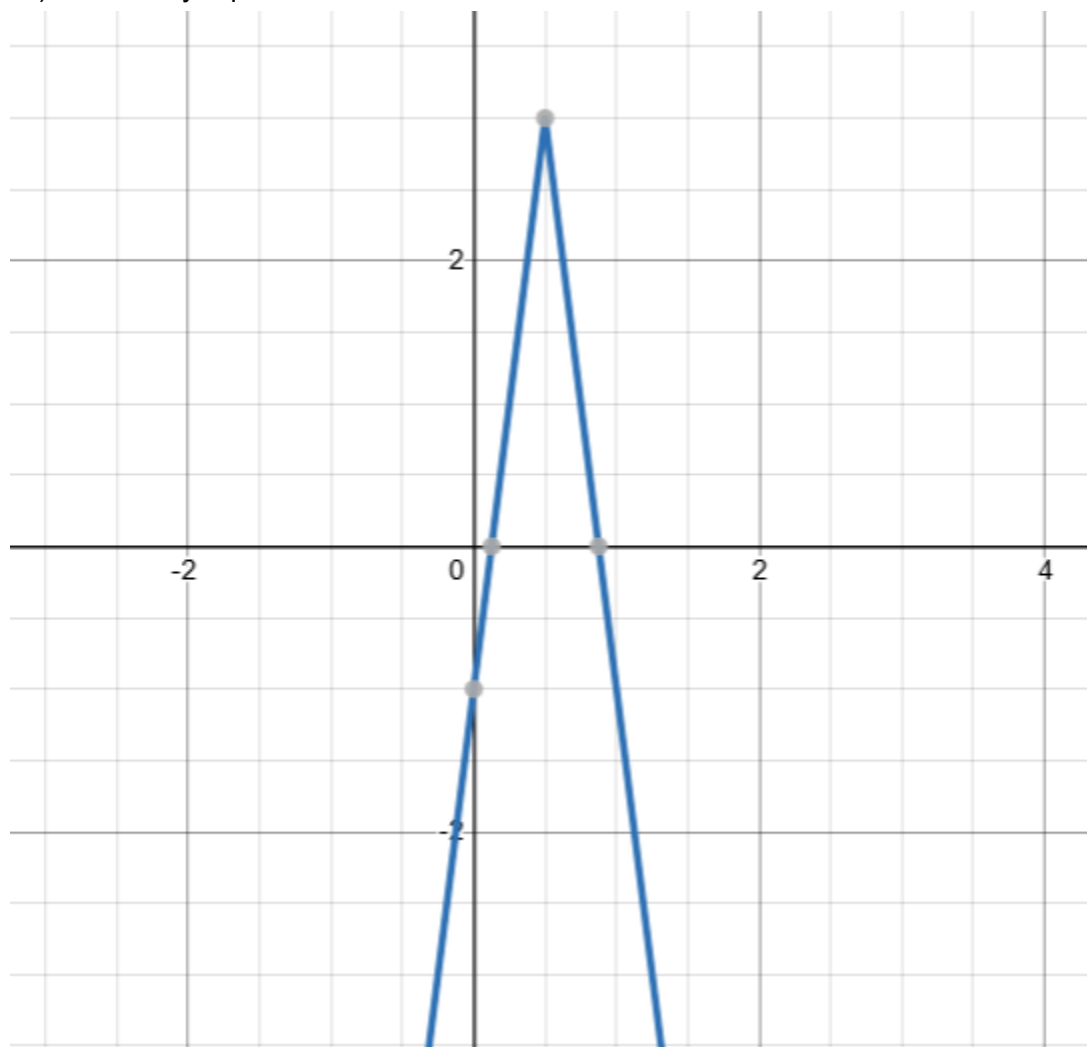
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13) Identify equation of



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14) Identify equation of



Graphing Polynomials

15) Graph $y = -3x^5 + 2x^3 + 3x^2 - 2$

16) Graph $y = 3(x - 2)(4x^2 - 1)(x + 6)^5$

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17) Identify an equation for

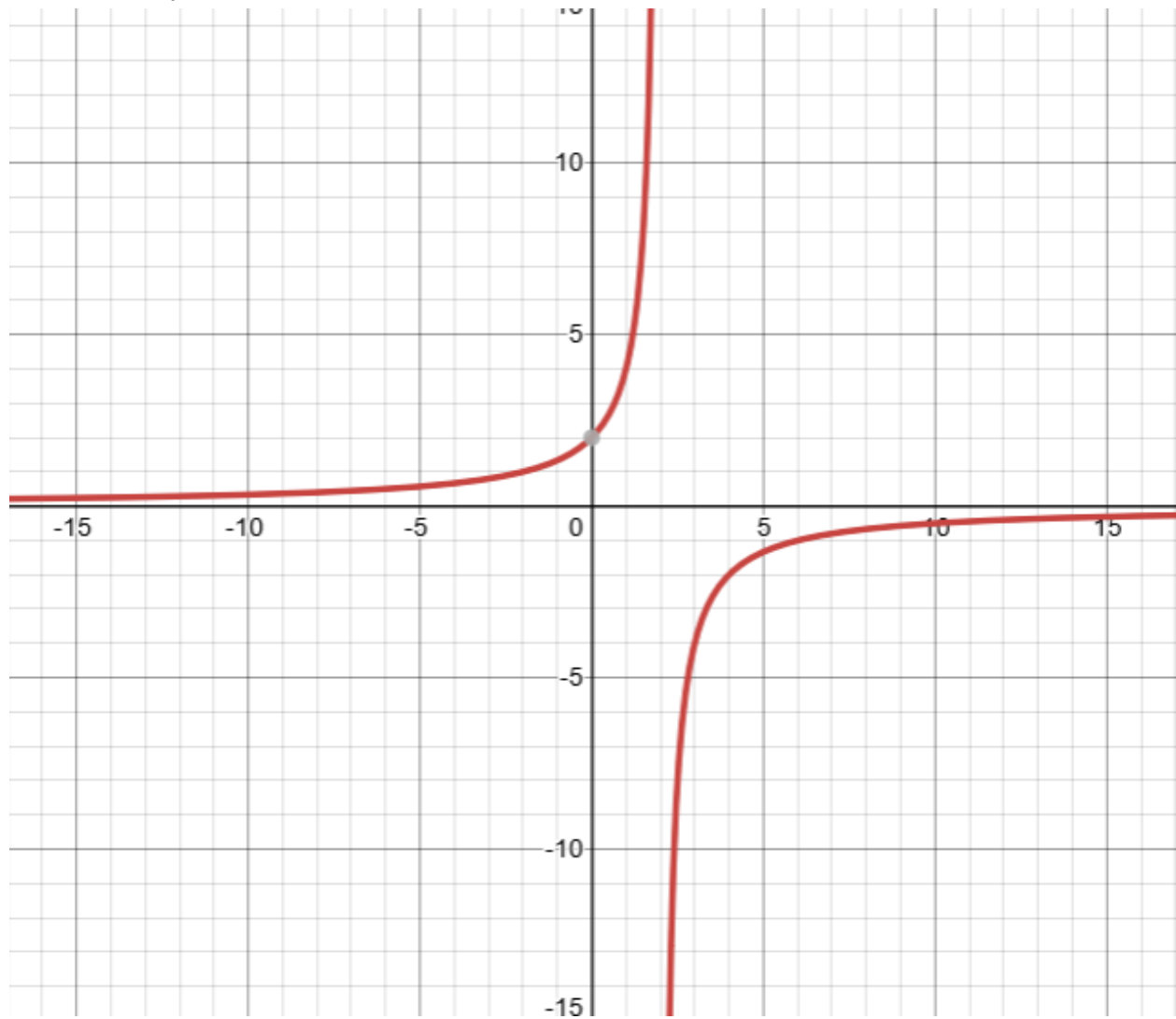


Graphing Rational Equations

18) Graph $y = \frac{4x^2 - 36}{x^2 - 2x - 8}$

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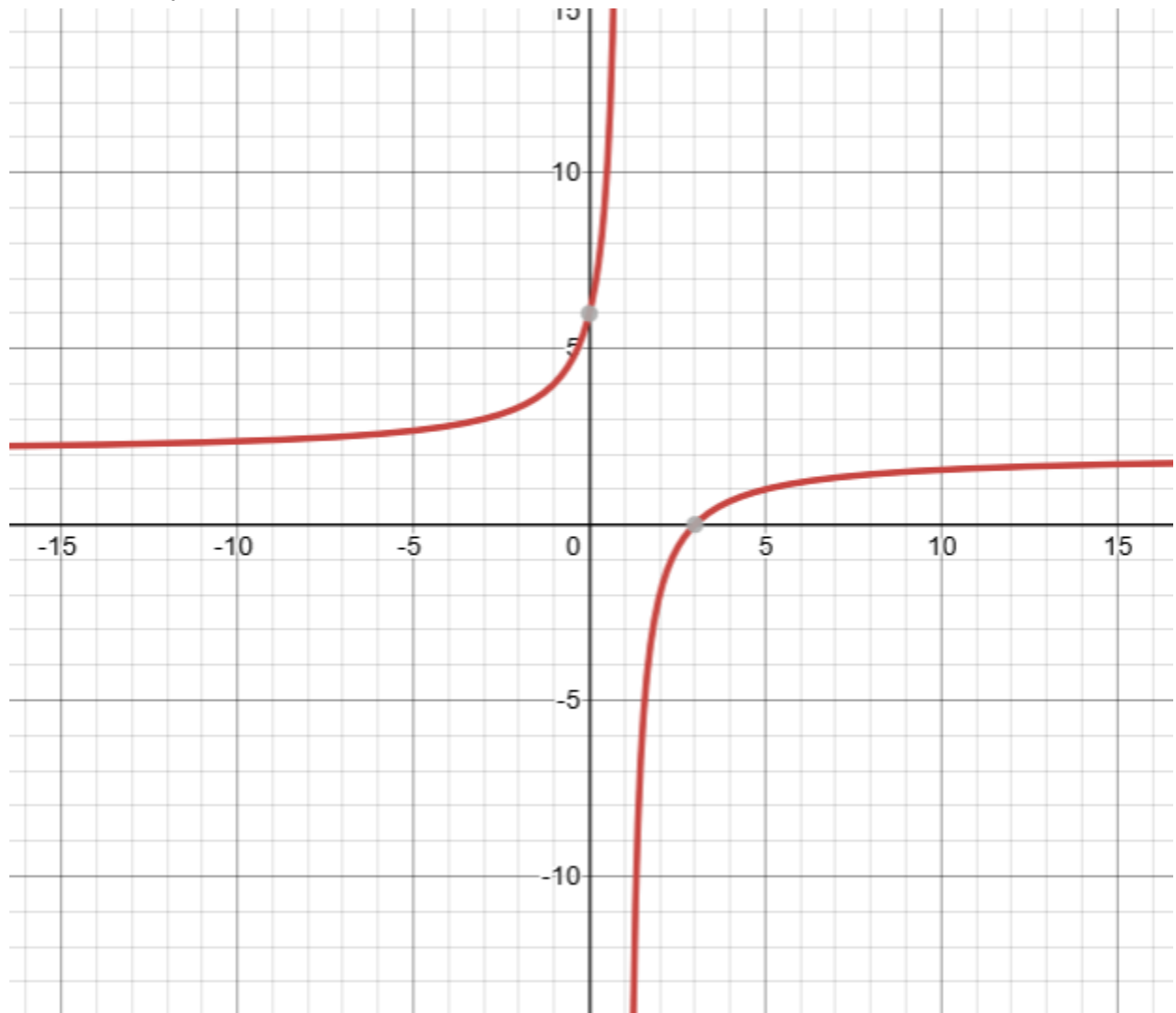
19) Identify an equation from



Asymptotes: $x = 2$, $y = 0$

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20) Identify an equation from



Asymptotes: $x = 1$, $y = 2$