

- Compute the greatest common factor and least common multiple of 48 and 64
- Simplify each of the following expressions.

a) $2x^3(x^5)$	e) $(-2xy^2)^2$	i) $\left(\frac{-2a^3b^{-2}}{a^5b^{-3}}\right)^{-2}$
b) $2x^{-3}(x^5)$	f) $(-2xy^{-2})^{-2}$	
c) $(2x)^3(x^5)$	g) $(-a^2b)^3(a^4b)^2$	j) $\left(\frac{2x^2}{3y^{-3}}\right)^2\left(\frac{-2x}{y^2}\right)^{-3}$
d) $(2x)^{-3}(x^5)$	h) $(-a^{-2}b)^{-3}(a^4b^{-1})^{-2}$	
- Factor out -1 from each of the following. Present your answer in terms organized by degree from highest to lowest.

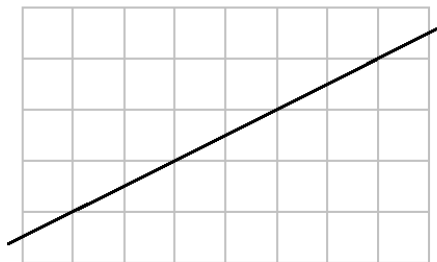
a) $-x^4 - 2x^7 + 3$	b) $1 - 5x$	c) $3x + 8 - 5x^2$	d) $4a - 4a^2 - 1$
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- Factor each of the following by grouping.

a) $2ax - 15y - 5a + 6xy$	c) $6ax - 3bx + 2ay^2 - by^2$
b) $3am - 3bm - an + bn$	d) $2x - 5y + 2mx - 5my$
- Completely factor each of the following polynomials.

a) $10x^2 - 12xy - 20x + 6x^2y$	c) $1 - x^{10}$
b) $6ax^2 - 6ay^2 - 3bx^2 + 3by^2$	d) $3a^6b - 243a^2b$
- Solve each of the following equations. Make sure to check your solutions.

a) $b^3 = 4b^2$	b) $b^3 = 9b$	c) $2(x - 3) - \frac{x}{2} = \frac{3}{2}(x - 4)$
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- Solve each of the following inequalities. Graph the solution set.

a) $\frac{5x + 1}{28} + \frac{12x - 6}{56} < \frac{x - 1}{14}$	b) $x(4 - x) - (2x - 1)^2 \geq (1 - x)(5x - 2)$
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- Compute the slope of the line determined by the points $(3, -2)$ and $(5, 4)$.
 - What is the slope of the line shown on the picture below?



- Julia is 5 years younger than her brother, Tom. How old are they if the sum of their ages is 43?
- One side of a rectangle is 6 in shorter than twice the other side. Find the sides of the rectangle if its perimeter is 120 in.
- If we square a number, we get six times the number. Find all numbers with this property.
- If we raise a number to the third power, we get four times the number. Find all numbers with this property.