50% on ES

$\frac{25}{25}$ = 100% on ESMQ

$50 + .5(100 - ES\,score)(\ 1\ ) = 75$

$\frac{22}{25}$ on ESMQ:

$50 + .5(100 - ES\,score)(\frac{22}{25})$

Find an equation of the line thru $(-2,3)$ & $(5,-2)$. Graph it.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-2-3}{5-(-2)} = \frac{-5}{7}$$

Point-slope: $y - y_1 = m(x - x_1)$

$y - 3 = -\frac{5}{7}(x+2)$ stop!

Standard Form $Ax + By = C$

$7y - 21 = -5(x+2) = -5x - 10$

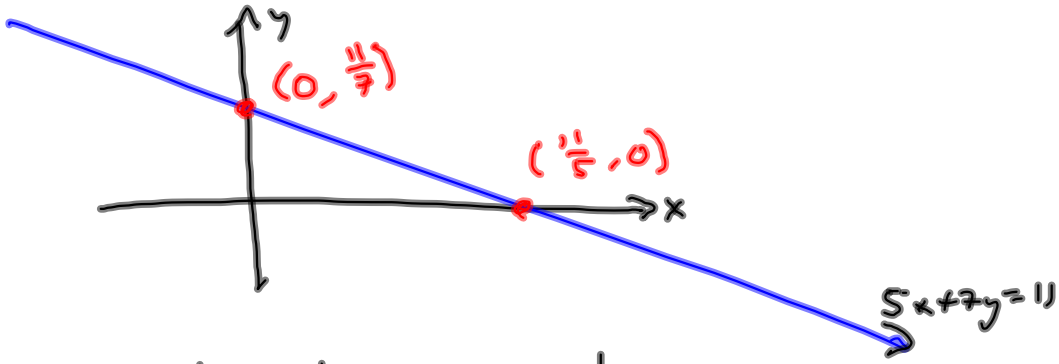
$+5x \qquad +21 \qquad = +5x + 21$

$5x + 7y = 11$ Easiest Form to graph.

x	y
0	$\frac{11}{7}$
$\frac{11}{5}$	0

$7y = 11 \rightarrow y = \frac{11}{7}$

$5x = 11 \rightarrow x = \frac{11}{5}$



Slope-Intercept: $y = mx + b$

From STANDARD $5x + 7y = 11$

$7y = -5x + 11$

$y = \frac{-5x+11}{7}$

$y = -\frac{5}{7}x + \frac{11}{7}$

From POINT-SLOPE

$y - 3 = -\frac{5}{7}(x+2) = -\frac{5}{7}x - \frac{10}{7}$

$y = -\frac{5}{7}x + \frac{11}{7}$

$-\frac{10}{7} + 3\left(\frac{7}{7}\right) = -\frac{10}{7} + \frac{21}{7}$

$= \frac{11}{7}$

Dec 3-11:18 AM

$\frac{4x^2-24x}{3x^2-x-2} + \frac{3}{3x+2} = -\frac{4}{x-1}$ LCD = $(3x+2)(x-1)$

$(3x+2)(x-1)$

$= 3x^2-3x+2x-2$ ✓

$\frac{4x^2-24x}{(3x+2)(x-1)} + \left(\frac{3}{3x+2}\right)\left(\frac{x-1}{x-1}\right) = \left(\frac{-4}{x+1}\right)\left(\frac{3x+2}{3x+2}\right)$

$\frac{4x^2-24x+3(x-1)}{LCD} = \frac{-4(3x+2)}{LCD}$

$4x^2-24x+3x-3 = -12x-8$

$4x^2-21x-3 = -12x-8$

$+12x+8 = +12x+8$

$4x^2-9x+5=0$

$(4)(5)=20=ac$

want sum of -9

$-4-5=-9$

$(-4)(-5)=20$

$4x^2-5x-4x+5=0$

$x(4x-5)-1(4x-5)=0$

$(4x-5)(x-1)=0$

$x \in \{\frac{5}{4}, 1\}$

$4\left(x^2-\frac{9}{4}x+\frac{5}{4}\right)=0$

$x^2-\frac{9}{4}x+\frac{5}{4}=0$

$x^2-\frac{9}{4}x+\left(\frac{9}{8}\right)^2 = -\frac{5}{4}+\frac{81}{64}$

$\left(x-\frac{9}{8}\right)^2 = \left(\frac{-5}{4}\right)\left(\frac{16}{16}\right)+\frac{81}{64}$

$\left(x-\frac{9}{8}\right)^2 = \frac{-80+81}{64} = \frac{1}{64}$

$x-\frac{9}{8} = \pm\sqrt{\frac{1}{64}} = \pm\frac{1}{8}$

$x = \frac{9}{8} \pm \frac{1}{8}$ → $\frac{10}{8}=\frac{5}{4}$, $\frac{8}{8}=1$

$a=4, b=-9, c=5$

$b^2-4ac = (-9)^2-4(4)(5)$

$= 81-80 = 1$

$x = \frac{9\pm\sqrt{1}}{2(4)} = \frac{9\pm1}{8}$ → $\frac{10}{8}=\frac{5}{4}$, $\frac{8}{8}=1$

$(x+1)(x-3)$

Bonus Trick: Use quadratic to factor

$4x^2-9x+5=0$ … $x=1, \frac{5}{4}$

$\Rightarrow 4(x-1)(x-\frac{5}{4})$

$= (x-1)(4)(x-\frac{5}{4})$

$= (x-1)(4x-5)$

The relationship between $ax^2+bx+c=0$ and Factoring $a(x-r_1)(x-r_2)$

Dec 3-11:32 AM

$x^2 - 3x - 3 = \left(x - \left(\frac{3+\sqrt{21}}{2}\right)\right)\left(x - \left(\frac{3-\sqrt{21}}{2}\right)\right)$

$a = 1, b = -3, c = -3$

$b^2 - 4ac = (-3)^2 - 4(1)(-3)$

$= 9 + 12 = 21$

$x = \frac{+3 \pm \sqrt{21}}{2(1)} = \frac{3 \pm \sqrt{21}}{2}$

Everything factors, if you allow irrationals and nonreals.

$$\frac{\frac{x^2-9}{2x^2+9x+9}}{\frac{x^3-27}{8x^3+27}}$$

$$= \left(\frac{x^2-9}{2x^2+9x+9}\right)\left(\frac{8x^3+27}{x^3-27}\right)$$

$$x^3-y^3 = (x-y)(x^2+xy+y^2)$$

$$x^3+y^3 = (x+y)(x^2-xy+y^2)$$

$$2x^2+9x+9 =$$
$$2x^2+6x+3x+9 =$$
$$2x(x+3)+3(x+3) =$$
$$(x+3)(2x+3)$$

$$8x^3 = 2^3x^3 = (2x)^3$$

$$= \left(\frac{(x-3)(x+3)}{(2x+3)(x+3)}\right)\left(\frac{(2x+3)((2x)^2-(2x)(3)+3^2)}{(x-3)(x^2+3x+3^2)}\right)$$

$$= \frac{4x^2-6x+9}{x^2+3x+9}$$

$$8x^3+27 = 2^3x^3+3^3 = (2x)^3+3^3$$
$$= (2x+3)((2x)^2-(2x)(3)+3^2)$$