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1. Solve for $x$ by completing the square,
   and check one of your solutions.

$$x^2 - 8x + 13 = 0$$

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2. Given points $A(-3, 2)$ and $B(9, 10)$, draw a diagram to illustrate $\overleftrightarrow{AB}$ with a point $X(x, y)$. Draw horizontal and vertical lines to make right triangles.

a. Explain why the triangles are similar.
b. Use the lengths to find an equation of $\overleftrightarrow{AB}$.
c. Convert to slope-intercept and standard form.

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3. Let $f(x) = 2^x$. Make the chart and graph $y = f\left(-\frac{1}{2}x\right) + 3$.

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4. Dom leaves his house at noon and rides his bicycle south at a uniform rate. His wife, Sue, leaves at the same time heading due north. Dom's rate is ten kilometers per hour faster than Sue's rate. At 5 pm they are 160 km apart. Determine the rate of travel for each cyclist.

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5. Divide. [Note that in the first term, the $x$ is cubed.]

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

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6. Solve for $x$ by factoring.

$$(x-2)(x-1)=12$$

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7. Simplify.

$$\frac{x-5}{x^2-x-56} - \frac{2}{x^2-6x-16}$$

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8. The intensity, $I$, of light received at a source varies inversely as the square of the distance, $d$, from the source. If the light intensity is 40 foot-candles at 10 feet, determine the light intensity at 20 feet.

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9. Evaluate.

$$64^{-\frac{2}{3}}$$

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10. Complete the square to find the center and radius, then find the intercepts (if any). Graph.

$$x^2 + y^2 - 6x - 4y - 12 = 0$$

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11. Complete the square to find the vertex, then find the intercepts (if any). Graph.
[Note that you must show that you completed the square to get full credit.]

$$y = x^2 - 6x + 5$$

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12. Give $\Delta ABC$ with $A(-8, 1)$, $B(8, 9)$, and $C(10, -5)$,

a. Find equations of the perpendicular bisectors.
b. Show that the perpendicular bisectors concur.
c. Find an equation of the circumcircle.
d. Graph.

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[More space for #12]