Trajectory: Algebra

1. Early finishers: In the following two problems, solve for the value of x.

   (a) $2x + 3 = x + 9$

   (b) $\frac{1}{2}(11 - x) = 5$

2. Solve for x

   (a) $\frac{1}{3}x - 7 = -4$

   (c) $\frac{1}{2}(x - 7) = 12$

   (b) $\frac{3}{4}x = 9$

   (d) $\frac{2}{3}(x + 7) = x - 4$

3. Given the linear function $f(x) = 3x + 4$.

   (a) Find $f(0)$

(b) $f(x) = 10$. Find x.

4. Solve for the value of x.

(a) $3x - 3 = x + 7$

(b) $\frac{1}{2}(4x + 2) = 7$

5. Given the linear function $f(x) = 2x - 6$.

(a) $f(x) = 0$. Find x.

(b) Find $f(2)$

6. Solve for the value of x.
   (a) $\frac{4}{3}(6x-3) = x+10$
   (b) $\frac{2}{5}(x-1) + \frac{5}{2}(1-x) = 0$

7. Given the linear function $f(x) = -2x + 14$, find x.
   (a) Find $f(4)$
   (b) $f(x) = 21$. Find x.

8. Spicy: Practice these techniques for quadratics (x^2)
   (a) Expand $(x+4)(x+3)$

   (b) Convert to *standard form* (equal to zero): $x^2 + 4 = 4x$

   (c) Factor, $x^2 + 9x + 8 = 0$

9. Given $x^2 + 9x + 8 = 0$. Factor and find the roots.

10. Given $x^2 + 8x + 7 = 0$. Factor and find the roots.

11. Given $x^2 + 6x + 5 = 0$. Factor and find the roots.
12. Spicy Do Now: Solve for x, $x^2 + 10x + 7 = 2x$