40. $h(x) = \frac{3}{2}(x-3) + 2$ ←

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

$y = \frac{3}{2}x - \frac{5}{2}$ ✓

$x = \frac{3}{2}y - \frac{5}{2}$

$+\frac{5}{2} \qquad\qquad +\frac{5}{2}$

$\frac{2}{3}x + \frac{5}{2}\cdot\frac{2}{3} = \frac{2}{3}\cdot\frac{3}{2}y$

$\frac{2}{3}x + \frac{5}{3} = y$

$y = \frac{2}{3}x + \frac{5}{3}$

$h^{-1}(x) = \frac{2}{3}x + \frac{5}{3}$

$h(x) = \frac{3}{2}x - \frac{5}{2}$

$(h \circ h^{-1})(x) = \frac{3}{2}\left(\frac{2}{3}x + \frac{5}{3}\right) - \frac{5}{2}$

$(h \circ h^{-1})(x) = x + \frac{5}{2} - \frac{5}{2}$

$(h \circ h^{-1})(x) = x$

$(h^{-1} \circ h)(x) = \frac{2}{3}\left(\frac{3}{2}x - \frac{5}{2}\right) + \frac{5}{3}$

$(h^{-1} \circ h)(x) = x - \frac{5}{3} + \frac{5}{3}$

$(h^{-1} \circ h)(x) = x$

2.6 Special Functions
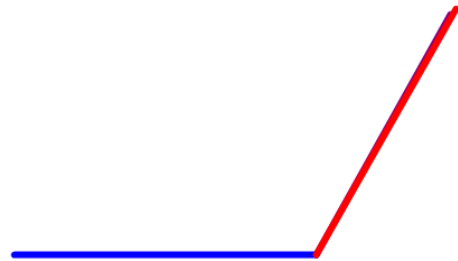
Piecewise Functions

$$f(x) = \begin{cases} 2x & x < 3 \\ x+4 & x \geq 3 \end{cases}$$

$f(1) = 2(1)$ $f(5) = 5+4$

$1 < 3$

$f(1) = 2$ $5 \geq 3$

$f(5) = 9$

$\$10.^{50}$

$\$\ 5.^{25}$

$y = 10.50x \qquad x \le 40$

$y = 15.75x \qquad x > 40$

$$f(x) = \begin{cases} 10.50x & x \le 40 \\ 420 + 15.75(x-40) & x > 40 \end{cases}$$

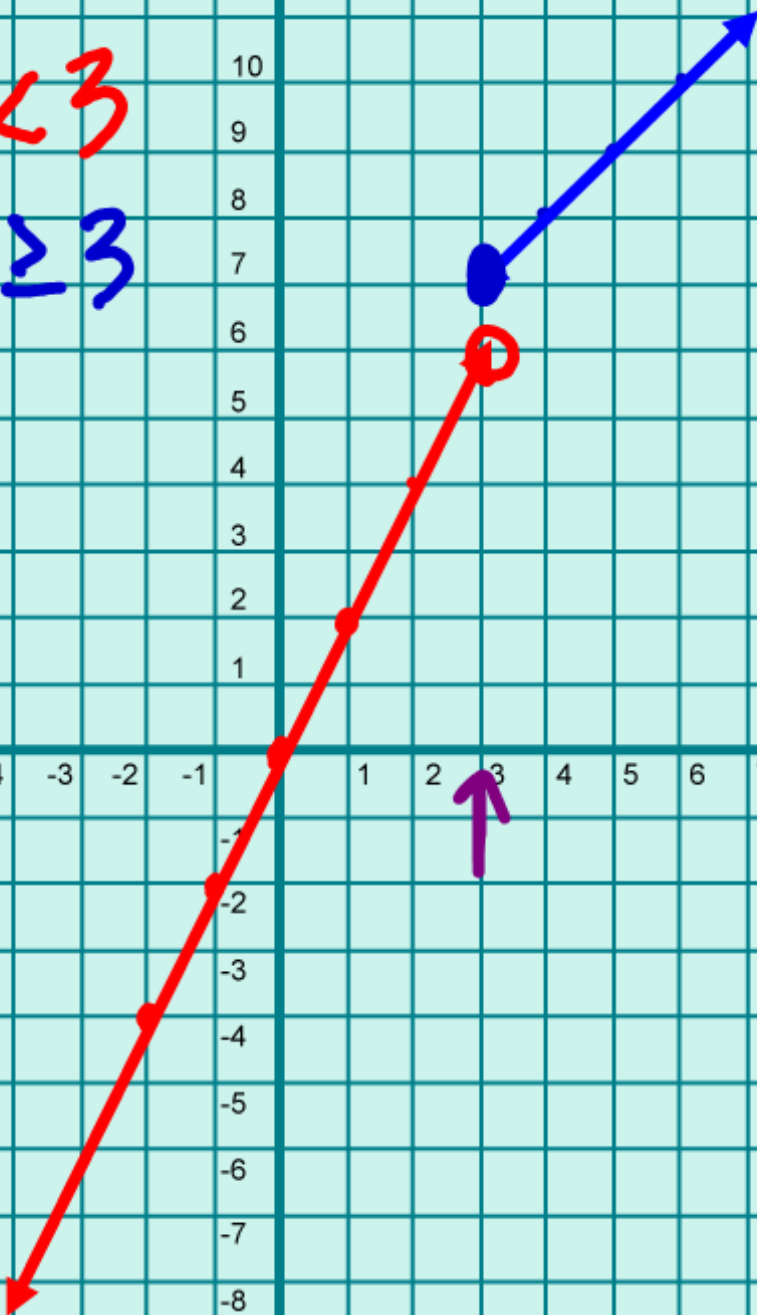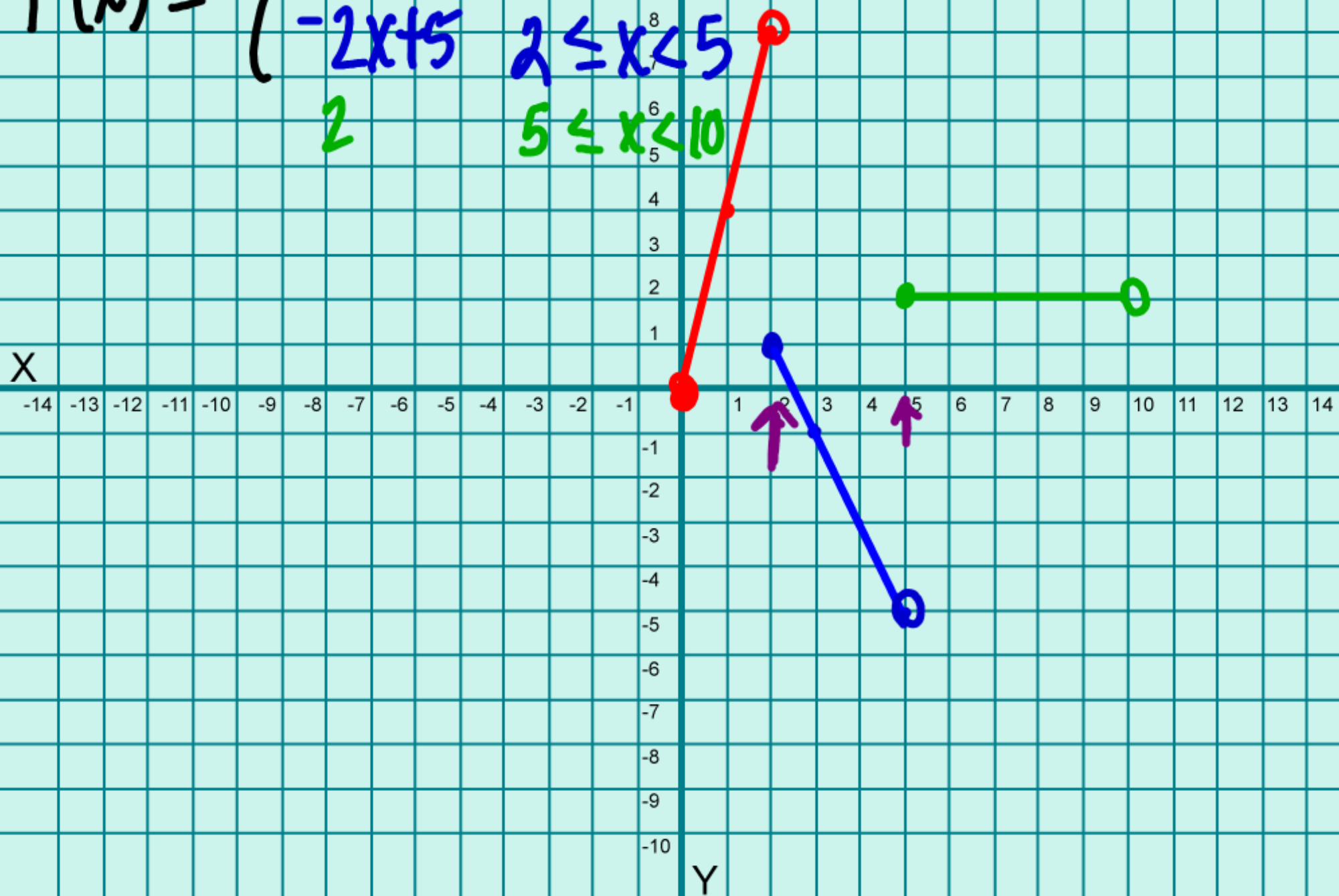$$f(x) = \begin{cases} 2x & x < 3 \\ x+4 & x \geq 3 \end{cases}$$

$y = 2x$

$y = x + 4$

$$f(x) = \begin{cases} 4x & 0 \le x < 2 \\ -2x+5 & 2 \le x < 5 \\ 2 & 5 \le x < 10 \end{cases}$$

P 129
16, 22, 24