Ch 6 Rational functions

① Domain

$g(x) = \frac{x-4}{x-6}$

$\{x \mid x \in \mathbb{R}, \text{ but } x \neq 6\}$

$\mathbb{R}$ ~~$\mathbb{R}$~~

Things you can't do in math

① ÷ by zero

$$\frac{15}{12} = \frac{3 \cdot 5}{2 \cdot 2 \cdot 3} = \frac{5}{4}$$

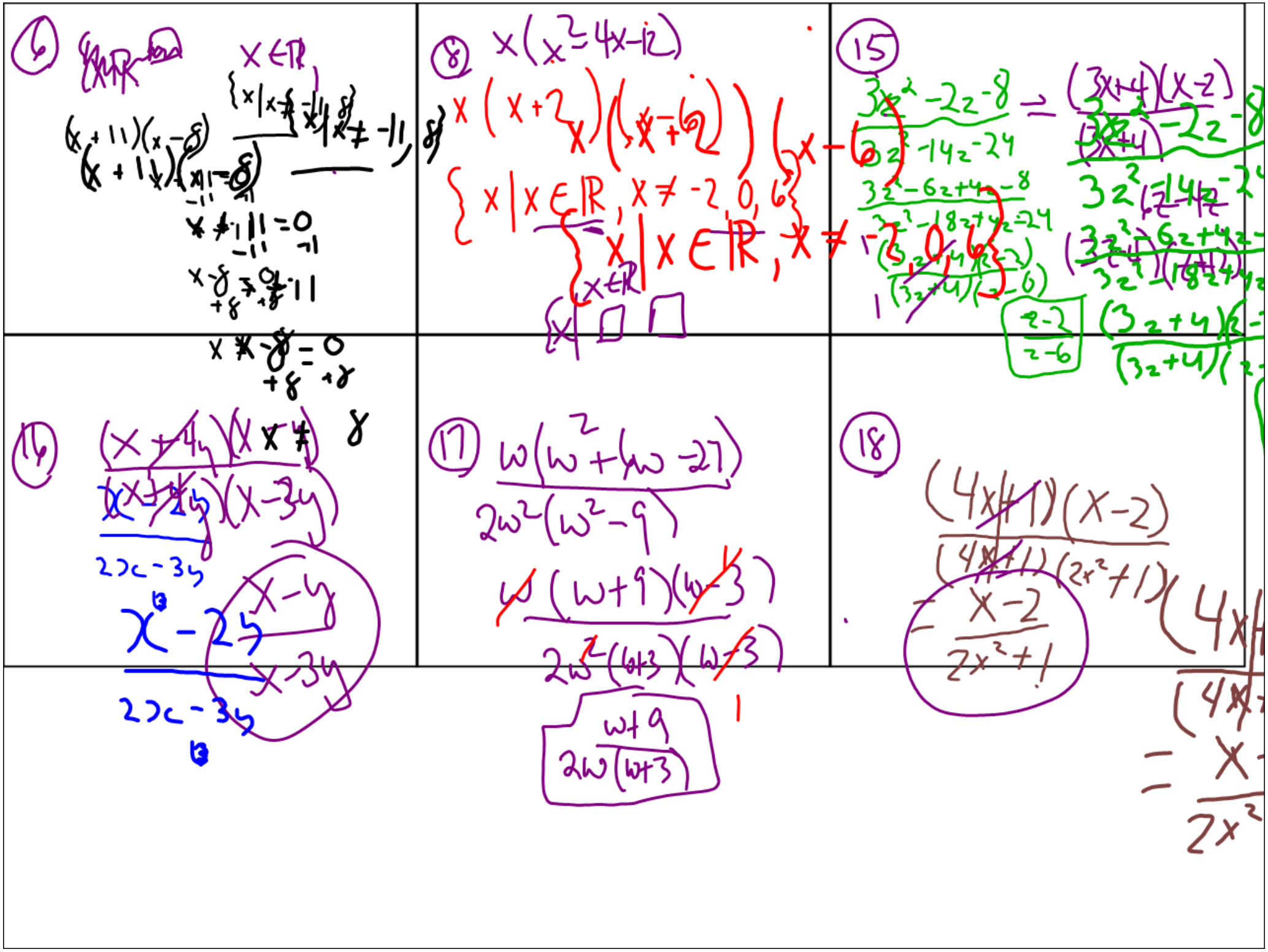
find the domain

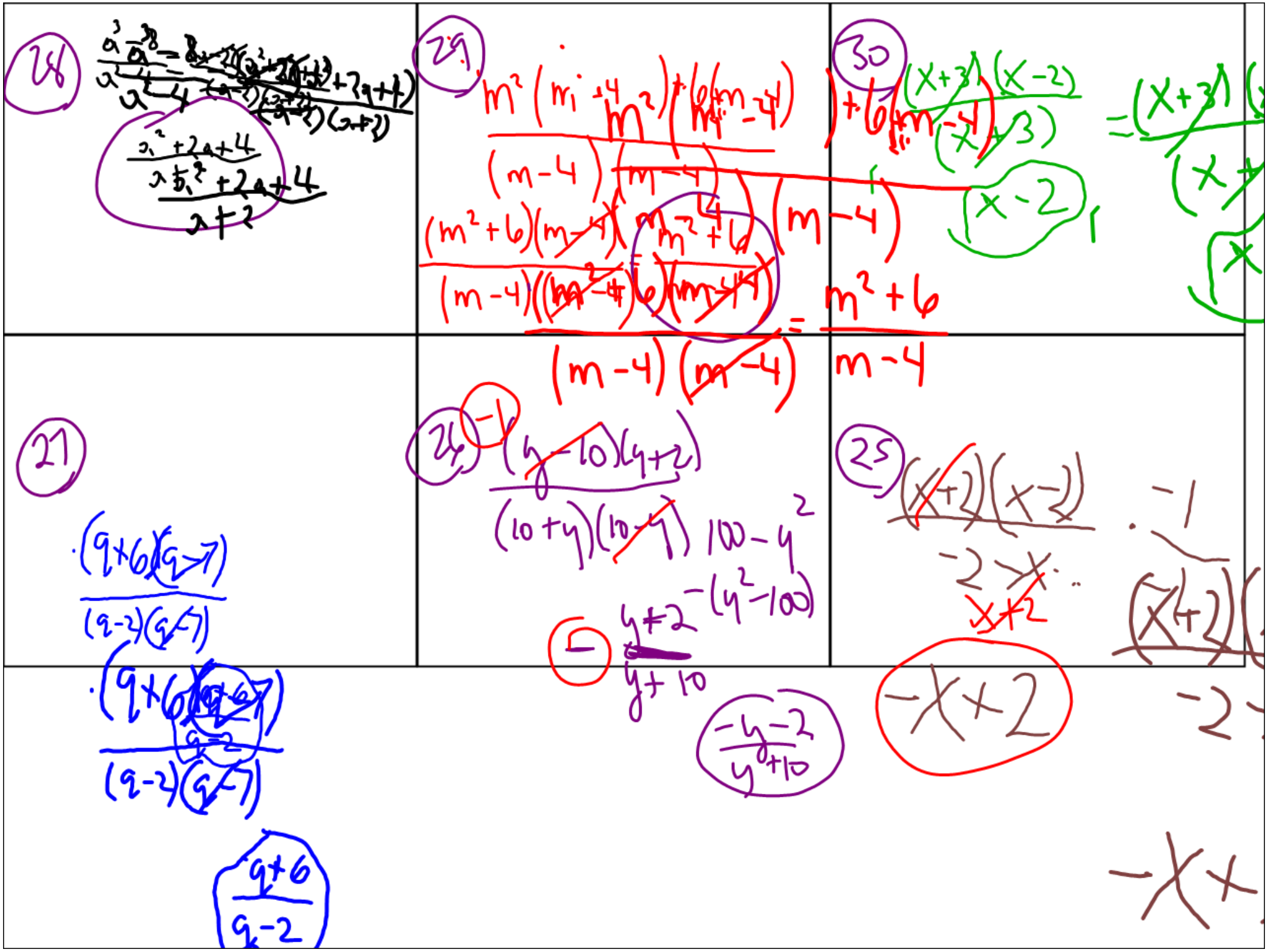
$$f(x) \quad \frac{x-4}{x^2-16} = \frac{x-4}{(x-4)(x+4)} = \frac{1}{x+4}$$

$$\{x \mid x \in \mathbb{R},\ x \neq -4, 4\}$$

$$\frac{7-5}{5-7} = \frac{2}{-2} = -1 \qquad \frac{x+3}{x-3}$$

$$\frac{+x-3}{3-x} = \frac{x-3}{-(x-3)} = -1$$


6
$x \in \mathbb{R}$
$\{x \mid x \neq -11, 8\}$
$(x+11)(x-8)$
$x+11=0$
$x-8=0$
$x \neq -11$
$x \neq 8$
8
$x(x^2-4x-12)$
$x(x+2)(x-6)$
$\{x \mid x \in \mathbb{R}, x \neq -2, 0, 6\}$
$\{x \mid x \in \mathbb{R}\}$
15
$\frac{3x^2-2x-8}{3x^2-14x-24}$
$\frac{(3x+4)(x-2)}{(3x+4)(x-6)}$
$\frac{x-2}{x-6}$
16
$\frac{(x+4y)(x-3y)}{(x+2y)(x-3y)}$
$2x-3y$
x^2-2y
$x-4y$
$x-3y$
$2x-3y$
17
$\frac{w(w^2+4w-21)}{2w^2(w^2-9)}$
$\frac{w(w+7)(w-3)}{2w^2(w+3)(w-3)}$
$\frac{w+7}{2w(w+3)}$
18
$\frac{(4x+1)(x-2)}{(4x+1)(2x^2+1)}$
$\frac{x-2}{2x^2+1}$


28
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$$\frac{x^2-4}{} \rightarrow \frac{(x+2)(x-2)}{-(x+2)}$$

$-2+x$

$-(2+x)$

$\therefore$

$$-(x-2) = -x+2$$