

Simplify.

- ① $\frac{15-6x}{4x^2-25} \rightarrow \frac{3(5-2x)}{(2x-5)(2x+5)} \rightarrow \boxed{\frac{-3}{2x+5}}$
- ② $\frac{5a^2b^3}{15ab^5} \rightarrow \frac{5 \cdot \cancel{a} \cdot \cancel{b} \cdot b \cdot b \cdot b}{15 \cdot \cancel{a} \cdot b \cdot b \cdot \cancel{b} \cdot b \cdot b} \rightarrow \frac{1 \cdot 5a}{3 \cdot 5b^2} \rightarrow \boxed{\frac{a}{3b^2}}$
- ③ $\frac{3a+6}{4a+20} \cdot \frac{a^2+3a-10}{a^2-4} \rightarrow \frac{3(\cancel{a+2})(\cancel{a+5})(\cancel{a-2})}{4(\cancel{a+5})(\cancel{a+2})(\cancel{a-2})} = \boxed{\frac{3}{4}}$
- ④ $a^8-49 \rightarrow \boxed{(a^4-7)(a^4+7)}$
- ⑤ $\frac{3a}{a-8} + \frac{7}{8-a} \rightarrow \frac{3a}{a-8} - \frac{7}{a-8} = \boxed{\frac{3a-7}{a-8}}$

Calculate the domain

- ⑥ $\sqrt{2x+10}$
 $2x+10 \geq 0$
 $2x \geq -10$
 $\boxed{x \geq -5}$
- ⑦ $\frac{1}{3x-6}$
 $3x-6 \neq 0$
 $3x \neq 6$
 $\boxed{x \neq 2}$
- everything except 2

Handy Dandy Method

⑧ $\frac{4}{x} - \frac{3}{7} \rightarrow \boxed{\frac{28-3x}{7x}}$

Calculate the midpoint and the distance between the points

⑨ $(3, -1) (-2, 11)$

Midpoint $(\frac{x_2+x_1}{2}, \frac{y_2+y_1}{2})$

$(\frac{-2+3}{2}, \frac{11+(-1)}{2})$

$(\frac{1}{2}, \frac{10}{2}) \rightarrow \boxed{(\frac{1}{2}, 5)}$

distance = $\sqrt{(x_2-x_1)^2 + (y_2-y_1)^2}$

$= \sqrt{(-2-3)^2 + (11-(-1))^2}$

$= \sqrt{(-5)^2 + (12)^2}$


$= \sqrt{25+144}$

$= \sqrt{169}$

$= \boxed{13}$

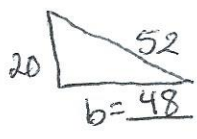
Wed 10/16 cont.

Is this a right triangle?

(10) 
 $a^2 + b^2 = c^2$
 $9^2 + 12^2 \stackrel{?}{=} 14^2$
 $81 + 144 = 196$
 $1025 \neq 196$

not a right triangle

what is the missing side?

(11) 
 $20^2 + b^2 = 52^2$
 $400 + b^2 = 2704$
 $b^2 = 2304$
 $b = \sqrt{2304} = 48$

(12)
$$\frac{\frac{3x+6}{5x-25}}{\frac{x^2-4}{2x-10}} \rightarrow \frac{3x+6}{5x-25} \cdot \frac{2x-10}{x^2-4} \rightarrow \frac{3(x+2)2(x-5)}{5(x-5)(x+2)(x-2)}$$

$$\frac{6}{5(x-2)}$$

What kind of triangle is formed by these 3 points.

(13) $(-4, 5), (4, 5), (0, -1)$



$d_1 = \sqrt{(4 - (-4))^2 + (5 - 5)^2}$
 $= \sqrt{8^2 + 0^2}$
 $= \sqrt{8^2}$
 $= 8$

$d_3 = \sqrt{(0 - 4)^2 + (-1 - 5)^2}$
 $d_3 = \sqrt{(-4)^2 + (-6)^2}$
 $= \sqrt{16 + 36}$
 $= \sqrt{52}$

$d_2 = \sqrt{(0 - (-4))^2 + (-1 - 5)^2}$
 $= \sqrt{4^2 + (-6)^2}$
 $= \sqrt{16 + 36}$
 $= \sqrt{52}$

$(\sqrt{52})^2 + (\sqrt{52})^2 = 8^2$

$52 + 52 = 64$

$104 \neq 64$

not a right triangle but its an isosceles.