1) $6 = \frac{a}{4} + 2$ • You want the variable in the NUMERATOR
↳ a stays on this side • Change everything, but leave fraction for last.

• First, Move the 2 (it's positive, goes to the other side negative)

$$6 - 2 = \frac{a}{4} \Rightarrow 4 = \frac{a}{4}$$

• the a is not alone. It has a 4 that's dividing it. Move it to the other side (it changes to multiplication)

$$4 \times 4 = a \quad \text{or} \quad \boxed{a = 16}$$

Check: $6 = \frac{16}{4} + 2$ $\quad 4 + 2 = 6 \quad \boxed{6 = 6}$ it checks!

2) $-6 + \frac{x}{4} = -5$ Since x is in the numerator, leave it there!

• First, Move the −6 (it changes to Positive)

$$\frac{x}{4} = -5 + 6 \Rightarrow \frac{x}{4} = 1$$

• the x has a 4 dividing it, so move it to the other side multiplying

$$\frac{x}{4} = 1 \Rightarrow x = 1(4) \quad \boxed{x = 4}$$

Check: $\frac{4}{4} = 1$ it checks!

5) $-4 = \frac{r}{20} - 5$ Since the r is in the numerator, leave it on that side

• First, Move the −5 (it changes to positive)

$$-4 = \frac{r}{20} - 5 \Rightarrow -4 + 5 = \frac{r}{20} \Rightarrow 1 = \frac{r}{20}$$

• the r has a 20 dividing, so move it to the other side (changes to multiplying)

$$1 = \frac{r}{20} \Rightarrow r = 1 \times 20 = 20 \quad \boxed{r = 20}$$

1) $6 = \frac{a}{4} + 2$ • You want the variable in the NUMERATOR
↳ a stays on this side • Change everything, but leave fraction for last.

• First, Move the 2 (it's positive, goes to the other side negative)

$$6 - 2 = \frac{a}{4} \Rightarrow 4 = \frac{a}{4}$$

• the a is NOT alone. It has a 4 that's dividing it. Move it to the other side (it changes to multiplication)

$$4 \times 4 = a \quad \text{or} \quad \boxed{a = 16}$$

Check: $6 = \frac{16}{4} + 2$ $4 + 2 = 6$ $\boxed{6 = 6}$ it checks!

2) $-6 + \frac{x}{4} = -5$ Since x is in the numerator, leave it there!

• First, Move the -6 (it changes to Positive)

$$\frac{x}{4} = -5 + 6 \Rightarrow \frac{x}{4} = 1$$

• the x has a 4 dividing it, so move it to the other side multiplying

$$\frac{x}{4} = 1 \Rightarrow x = 1(4) \quad \boxed{x = 4}$$

Check: $\frac{4}{4} = 1$ it checks!

5) $-4 = \frac{r}{20} - 5$ Since the r is in the numerator, leave it on that side

• First, Move the -5 (it changes to positive)

$$-4 = \frac{r}{20} - 5 \Rightarrow -4 + 5 = \frac{r}{20} \Rightarrow 1 = \frac{r}{20}$$

• the r has a 20 dividing, so move it to the other side (changes to multiplying)

$$1 = \frac{r}{20} \Rightarrow r = 1 \times 20 = 20 \quad \boxed{r = 20}$$

Check: $\frac{20}{20} - 5 \Rightarrow 1 - 5 = -4$ $\boxed{-4 = -4}$ it checks!

6) $-1 = \frac{5+x}{6}$ the x is in the numerator, so leave it on that side

- First, move the 6 that divides the x (it changes to multiplying)

$-1 = \frac{5+x}{6} \Rightarrow -1 \times (6) = 5 + x \Rightarrow -6 = 5 + x$

- Move the 5 (it's adding, so it changes to subtraction)

$-6 = 5 + x \Rightarrow -6 - 5 = x \Rightarrow \boxed{x = -11}$

Check: $-1 = \frac{5 + (-11)}{6} \Rightarrow \frac{5+(-11)}{6} = \frac{-6}{6} = -1$ $\boxed{-1 = 1}$ it checks

3) $\frac{a}{4} = \frac{15}{4}$ a is in the numerator, so leave it there

- a is positive and alone, but a 4 is dividing it. Move the 4 so that it multiplies.

$\frac{a}{4} = \frac{15}{4} \Rightarrow a = \frac{15}{\cancel{4}} \times \cancel{4} \Rightarrow \boxed{a = 15}$

7) $\frac{V+9}{3} = 8$ Since V is in the numerator, leave it on that side

- Move the 3 that divides V. It goes to the other side multiplying.

$\frac{V+9}{3} = 8 \Rightarrow V + 9 = 8 \times 3 \Rightarrow V + 9 = 24$

- Move the 9. It goes to the other side subtracting

$V + 9 = 24 \Rightarrow V = 24 - 9 \Rightarrow \boxed{V = 15}$

Check $\frac{V+9}{3} \Rightarrow \frac{15+9}{3} = \frac{24}{3} = 8$ $\boxed{8=8}$ it checks!

5) $15 = \frac{V}{2}$

- the V is positive and by itself. So, move the 2 that divides it (it goes to the other side multiplying)

$15 = \frac{V}{2} \Rightarrow V = 15 \times 2 \Rightarrow \boxed{V = 30}$

Check: $\frac{V}{2} \Rightarrow \frac{30}{2} = 15$ $\boxed{15 = 15}$ it checks!

11) $-2 = 2 + \frac{V}{4}$ Since the V is in the numerator, Leave it on that side.

$-2 = 2 + \frac{V}{4}$ (the 2 goes to the other side subtracting)

$-2 - 2 = \frac{V}{4} \Rightarrow -4 = \frac{V}{4}$

- now, move the 4 that is dividing V to the other side (multiplying)

$-4 = \frac{V}{4} \Rightarrow (-4) \times (4) = V \Rightarrow \boxed{V = -16}$

check: $2 + \frac{V}{4} \Rightarrow 2 + \frac{-16}{4} \Rightarrow 2 + (-4) = -2$

$\boxed{-2 = -2}$ it checks

$\frac{122}{10X} - 2 = 12$

- Anytime the variable is in the denominator, move it to the other side so that it ends up multiplying.

- Before you do that, make sure you have moved everything else to the other side

Move the -2 first (changes to positive)

$\frac{122}{10X} - 2 = 12 \quad \frac{122}{10X} = 12 + 2 \Rightarrow \frac{122}{10X} = 14$

Now $\Rightarrow \frac{122}{10X} = 14 \Rightarrow 122 = (14) \times (10X) \Rightarrow 122 = 140X$

Now, proceed as you do:

$$122 = 140x \Rightarrow \boxed{x = \frac{122}{140}}$$

moves dividing

You can leave your answer as a fraction; or as a decimal.

check it: $\dfrac{122}{10\left(\frac{122}{140}\right)} = \dfrac{122}{\frac{1220}{140}} \Rightarrow \dfrac{122}{1} \div \dfrac{1220}{140} = \dfrac{140 \times 122}{1220}$

$$= \frac{17080}{1220}$$

$$= 14$$

so $\boxed{14 = 14}$ it checks.

$$\frac{0.97}{x} + 3.5 = 6.4$$

- Move the 3.5 first (it goes to the other side subtracting)

$$\frac{0.97}{x} + 3.5 = 6.4 \Rightarrow \frac{0.97}{x} = 6.4 - 3.5 \Rightarrow \frac{0.97}{x} = 2.9$$

- Now, move the x to the other side so that it ends up multiplying

$$\frac{0.97}{x} = 2.9 \Rightarrow 0.97 = 2.9 \times x \Rightarrow 0.97 = 2.9x$$

- Now, move the 2.9 that is multiplying the x (it goes to the other side dividing)

$$0.97 = 2.9x \Rightarrow x = \frac{0.97}{2.9} \Rightarrow \boxed{x = 0.33}$$

check it:

$$\frac{0.97}{0.33} + 3.5 = 2.94 + 3.5 = 6.4$$

$\boxed{6.4 = 6.4}$ it checks

$$\frac{36}{x} = 36$$

- Move the x out of the denominator by sending it to the other side multiplying

$$\frac{36}{x} = 36 \Rightarrow 36 = 36x$$

- Now move the 36 that's multiplying the x to the other side as division:

$$36 = 36x \Rightarrow x = \frac{36}{36} \Rightarrow \boxed{x = 1}$$

check it: $\frac{36}{x} \Rightarrow \frac{36}{1} = 36$ $\boxed{36 = 36}$ it checks

$$\frac{56}{a} = -3.5$$

- Move the a out of the denominator by sending it to the other side multiplying:

$$\frac{56}{a} = -3.5 \Rightarrow 56 = -3.5 \times a$$

- Now, move the -3.5 to the other side (it changes to division)

$$56 = -3.5 \times a \Rightarrow a = \frac{56}{-3.5} \Rightarrow \boxed{a = -16}$$

Check: $-3.5 \times (-16) = 56$ $\boxed{56 = 56}$ it checks.