

1. Find all excluded values for the expression.

That is, find all values of  $w$  for which the expression is undefined.

$$\frac{w+8}{w^2+16w+64}$$

$$\begin{array}{c} 64 \\ 8 \times 8 \\ 16 \end{array}$$

$$(w+8)(w+8)=0$$

$$\begin{array}{c} w+8=0 \\ -8 \quad -8 \end{array}$$

$$\boxed{w = -8}$$

If there is more than one value, separate them with commas.

2. Simplify.

$$\frac{18-2x^2}{x^2+3x-18}$$

$$\begin{array}{c} -18 \\ 6 \times -3 \\ 3 \end{array}$$

$$\frac{-2(x^2-9)}{(x+6)(x-3)}$$

$$= \frac{-2(x+3)(x-3)}{(x+6)(x-3)}$$

$$\boxed{\frac{-2(x+3)}{x+6}}$$

3. Solve for  $v$ .

$$\frac{5(v+2)}{8v} + \frac{3(4v)}{10} = \frac{1(40)}{v}$$

$$\text{LCD} = 40v$$

$$5(v+2) + 3(4v) = 1(40)$$

$$5v+10 + 12v = 40$$

$$17v+10 = 40$$

$$\frac{17v}{17} = \frac{30}{17}$$

$$\boxed{v = \frac{30}{17}}$$

Restrictions  $v \neq 0$

4. Solve for  $v$ .

$$\frac{2(4(v+5))}{v+5} = \frac{8(4(v+5))}{4v+20} + 3(4(v+5))$$

$$\text{LCD} = 4(v+5)$$

$$\begin{aligned} -2(4) &= -8 + 12(v+5) \\ -8 &= -8 + 12v + 60 \\ -8 &= 12v + 52 \\ -52 & \quad -52 \end{aligned}$$

$$\frac{-60}{12} = \frac{12v}{12}$$

$$\boxed{v = -5}$$

Restrictions  $v \neq -5$

$\boxed{\text{No Solutions}}$