① Solve by factoring: $\sqrt{7-4x} = 2-2x$

$7-4x = (2-2x)^2$

$7-4x = 4-8x+4x^2$

$0 = 4x^2-4x-3$

$= (2x-3)(2x+1)$

$x = \frac{3}{2}, -\frac{1}{2}$ ✓

$\sqrt{7-4x}\ \frac{-1}{2} = 2-2x\ \frac{-1}{2}$

$\sqrt{9} = 2+1$

$3 = 3$

Check: $\sqrt{7-4x}\ \frac{3}{2} = 2-2x\ \frac{3}{2}$

$\sqrt{7-6} = 2-3$

$1 \neq -1$

$$a^2 - b^2 = (a+b)(a-b)$$

② Solve by Completing the Square : $\frac{-2}{x-2} + \frac{3x}{x+2} = \frac{-8}{x^2-4}$ $\Rightarrow (x-2)(x+2)$

$$-2(x+2) + 3x(x-2) = -8$$
$$-2x - 4 + 3x^2 - 6x = -8$$
$$3x^2 - 8x + 4 = 0$$
$$3\left(x^2 - \frac{8}{3}x\right) + 4$$
$$\frac{8}{3} \div 2 = \left(\frac{4}{3}\right)^2 = \frac{16}{9}$$
$$3\left(x^2 - \frac{8}{3}x + \frac{16}{9}\right) + 4 - \frac{16}{9} \times 3 = 0$$
$$3\left(x - \frac{4}{3}\right)^2 + 4 - \frac{16}{3} = 0$$
$$3\left(x - \frac{4}{3}\right)^2 = \frac{4}{3}$$
$$\left(x - \frac{4}{3}\right)^2 = \frac{4}{9}$$
$$x - \frac{4}{3} = \sqrt{\frac{4}{9}}$$
$$x = \pm\frac{2}{3} + \frac{4}{3}$$
$$x = 2, \frac{2}{3}$$

③ Solve using the quadratic formula : $\frac{1}{2}x^4 - 6x^2 + 10 = 0$

Let $z = x^2$

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Let $z = x^2$

$$\frac{-(-6) \pm \sqrt{(-6)^2 - 4 \cdot \frac{1}{2} \cdot 10}}{2 \times \frac{1}{2}}$$

$z = x^2$

$z = 10, 2$

$x^2 = 10, 2$

$x = \pm\sqrt{10}, \pm\sqrt{2}$

we have 4 answer

(4) Jerry and Millie are washing cars. Working alone, Jerry takes 5 minutes more than Millie to wash a car. Working together, it takes them 10 minutes.

a) How long does it take Millie to wash a car?

b) How long does it take Jerry to wash a car?

	time	Rate
Jerry	$x+5$ min	$\frac{1}{x+5}$
Millie	x	$\frac{1}{x}$
together	10 min	$\frac{1}{10}$

Add the rates

$\frac{1}{x+5} + \frac{1}{x} = \frac{1}{10}$

$x(x+5)\left(\frac{1}{x+5} + \frac{1}{x}\right) = \left(\frac{1}{10}\right)x(x+5)$

$x(x+5)\cdot\frac{1}{x+5} + x(x+5)\cdot\frac{1}{x} = 0.1\cdot(x^2+5x)$

$x + x+5 = 0.1x^2 + 0.5x$

$0 = 0.1x^2 - 1.5x - 5$

$x = \frac{-(-1.5) \pm \sqrt{(-1.5)^2 - 4(0.1)(-5)}}{2(0.1)}$

$= \frac{1.5 \pm \sqrt{2.25+2}}{0.2} = 17.81, -2.81$ neg time

a) 17.8 min b) 22.8 min