

Solving factoring quiz

factor out the GCF

① $9a^2b + 27ab$

$9ab(a + 3)$

② $12w^3t^3 - 9w^2t^2 + 15wt^3$

$\frac{3wt^3}{3wt^3} - \frac{9w^2t^2}{3wt^3} + \frac{15wt^3}{3wt^3}$

$3wt^3(4w^2 - 3 + 5wt)$

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factor by grouping

③ $3ac + ad + 6bc + 2bd$

$a(3c + d) + 2b(3c + d)$

$(3c + d)(a + 2b)$

④ $12x^3 + 2x^2 - 30x - 5$

$2x^2(6x + 1) - 5(6x + 1)$

$(6x + 1)(2x^2 - 5)$

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⑥ Sum-product Method

$2x^2 + 11x + 15$

$a = 2, b = 11, c = 15$

$a + c = 30$	$b = 11$
1×30	31 X
2×15	17 X
5×6	11 ✓

$2x^2 + 6x + 5x + 15$

$2x(x + 3) + 5(x + 3)$

$(x + 3)(2x + 5)$

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Factor Special Cases

⑦ $4x^2 - 49$

$\sqrt{4x^2} = 2x = a \quad \sqrt{49} = 7 = b$

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

$= (2x - 7)(2x + 7)$

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⑧ $4x^2 - 28x + 49$

$\sqrt{4x^2} = 2x = a \quad \sqrt{49} = 7 = b$

$2ab = 2(2x)(7) = 28x$

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

$= (2x - 7)^2$

#9 Prime

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Solve for X

⑩ $x^2 - 2x - 48 = 0$

Sum-product Method

$a = 1, b = -2, c = -48$

$a + c = -48$	$b = -2$
-1×48	47 X
-2×24	22 X
-8×6	2 X
-8×6	-2 ✓

$(x + 6)(x - 8) = 0$

$x + 6 = 0 \quad x - 8 = 0$

$x = -6 \quad x = 8$

$\sqrt{x^2} = x = a$
 $\sqrt{48} = 4\sqrt{3}$
is not a perfect square

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$$\textcircled{11} \quad 2x^2 + 10x + 12 = 0$$

$$\frac{2(x^2 + 5x + 6)}{2} = \frac{0}{2}$$

$$x^2 + 5x + 6 = 0$$

$$(x+2)(x+3) = 0$$

$$x+2=0 \quad | \quad x+3=0$$

$$\boxed{x=-2} \quad | \quad \boxed{x=-3}$$

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HW#3

#12 Solve by taking square root

$$x^2 = 64$$

$$\sqrt{x^2} = \sqrt{64}$$

$$x = \pm 8 \rightarrow \boxed{x=8} \quad \boxed{x=-8}$$

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#13

$$3x^2 + 12 = 0$$

$$\frac{3x^2}{3} = \frac{-12}{3}$$

$$x^2 = -4$$

$$\sqrt{x^2} = \sqrt{-4} = \sqrt{-1(4)} = \sqrt{-1} \sqrt{4}$$

$$x = \pm 2i$$

$$\boxed{x=2i} \quad | \quad \boxed{x=-2i}$$

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$$(3+2i) + (5-i)$$

$$= 8 - i$$

$$(3+2i)(5-i)$$

$$= 15 - 3i + 10i - 2i^2 \quad (i^2 = -1)$$

$$= 15 + 7i - 2(-1)$$

$$= 15 + 7i + 2$$

$$= \boxed{17 + 7i}$$

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