Ch.3 Review

1. Determine the GCF of 120, 200, 240   Determine the LCM of 120, 200, 240

$$10 \,|\, \underline{120, 200, 240}$$
$$4 \,|\, \underline{12, 20, 24}$$
$$3, 5, 6$$

$$GCF = 4 \times 10 = 40$$

$$10 \,|\, \underline{120, 200, 240}$$
$$4 \,|\, \underline{12, 20, 24}$$
$$3 \,|\, \underline{3, 5, 6}$$
$$1, 5, 2$$

$$LCM = 10 \times 4 \times 3 \times 1 \times 5 \times 2 = 1200$$

2. What is the value of $\sqrt{1764}$?

$$2 \,|\, 1764$$
$$2 \,|\, 882$$
$$7 \,|\, 441$$
$$7 \,|\, 63$$
$$3 \,|\, 9$$
$$3 \,|\, 3$$

$$1764 = (2 \times 7 \times 3) \times (2 \times 7 \times 3)$$
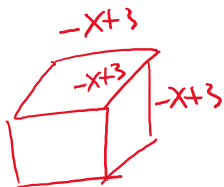
$$\therefore \sqrt{1764} = 2 \times 7 \times 3 = 42$$

3. Multiply and simplify $(2x - 3)^2$

$$(2x-3)^2 = (2x-3)(2x-3)$$

$$= 4x^2 - 6x - 6x + 9$$

$$= 4x^2 - 12x + 9$$

4. What is the surface area of a cube if the side length is $(-x + 3)$?

$$SA = 6 \times (-x+3)(-x+3)$$

$$= 6(x^2 - 3x - 3x + 9)$$

$$= 6(x^2 - 6x + 9) = \boxed{6x^2 - 36x + 54}$$

5. Factor $24x + 30x^2$

$$24x + 30x^2$$

$$= \boxed{6x(4 + 5x)}$$

6. $x^2 - 5x - 14$

$-7 \times 2 = -14$

$-7 + 2 = -5$

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

7. $3x^2 - 10x + 8$

$3 \times 8 = 24$ $-6x - 4 = 24$

$-6 + -4 = -10$

$= 3x^2 - 6x - 4x + 8$

$= 3x(x-2) - 4(x-2)$

$= (x-2)(3x-4)$

8. $2(x-1)^2 + 7(x-1) - 15$

$2x - 15 = -30$

$10x - 3 = -30$

$10 + (-3) = 7.$

let $a = x-1$

$\therefore 2(x-1)^2 + 7(x-1) - 15$

$= 2a^2 + 7a - 15$

$= 2a^2 + 10a - 3a - 15$

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

$= (a+5)(2a-3)$

$= (x-1+5)(2(x-1)-3)$

$= (x+4)(2x-2-3) = \boxed{(x+4)(2x-5)}$

9. $16x^2 - 81y^2$

$= (4x)^2 - (9y)^2$

$= (4x+9y)(4x-9y)$

10. What is the value of k so that the trinomial $4x^2 + 28x + k$ is a perfect square?

$\sqrt{4} = 2$ $2 \times \square \times 2 = 28$

$\sqrt{k} = \square$ $\therefore \square = 7.$

$\sqrt{k} = 7$

$\therefore \boxed{k = 49}$

11. $3x-1$

$2x+3$

$3/$
4
7

$(3x-1)(2x+3) - (4)(3)$

$= 6x^2 + 9x - 2x - 3 - 12$

$\boxed{= 6x^2 + 7x - 15}$