

B17)

a)  $(a+b)+(c-d)=a+b+c-d$

b)  $(a+b)-(c-d)=a+b-c+d$

c)  $(a-b)-(-c-d)=a-b+c-d$

d)  $(2a+b)+(a-b)=2a+a+b-b=3a$

e)  $(a-2b)-(2a+b)=a-2a-2b-b=-a-3b$

B18)

a)  $2\sqrt{x} + 3\sqrt{x} = 5\sqrt{x}$

b)  $(a+b)-(c-d)=a+b-c+d$

c)  $(a-b)-(-c-d)=a-b+c-d$

d)  $(2a+b)+(a-b)=2a+a+b-b=3a$

e)  $(a-2b)-(2a+b)=a-2a-2b-b=-a-3b$

B22)

$a a a = a^3$

$a^2 a^4 a = a^{2+4+1} = a^7$

$(a^2 b^3)^2 = (a^2)^2 (b^3)^2 = a^4 b^6$

$(a^2 b^3 c)^3 = (a^2)^3 (b^3)^3 c^3 = a^6 b^9 c^3$

B26)

$a(b+c)=ab+ac$

$2(3+4) = 2_x3+2_x4 = 6+8 = 14$

B28)

$(a+d)(b+c)=ab+ac+ db+dc$

$(2+5)(3+4) = 2_x3+2_x4 + 5_x3+5_x4 = 6+8+15+20 = 49$

B30)

$$(a+d)(a+c)=a^2+ac+ da+dc$$

$$a(a+c)=a^2+ac$$

$$a^3(a+c) = a^3 a + a^3 c = a^4 + a^3 c$$

$$a^3 c^2(a+c) = a^3 c^2 a + a^3 c^2 c = a^4 c^2 + a^3 c^3$$

B32)

$$(2a+3b) (5a+2c) = 2a 5a + 2a 2c + 3b 5a+ 3b 2c \\ = 10a^2 + 4ac + 15ab + 9 bc$$

$$(2a+3b) (5a+2b) = 2a 5a + 2a 2b + 3b 5a+ 3b 2b \\ = 10a^2 + 4ab + 15ab + 9 b^2$$

$$(a+b) (a+b) = aa + ab + ba+bb \\ = a^2 + 2ab + b^2$$

B34)

$$(2a+3b) (5a-2c) = 2a 5a - 2a 2c + 3b 5a - 3b 2c \\ = 10a^2 - 4ac + 15ab - 9 bc$$

$$(a+b) (a-b) = aa - ab + ba -bb \\ = a^2 - b^2$$

B36)

$$a) a (b+c+d) = ab+ac+ad$$

$$b) (x+y) (b+c+d) = xb+xc+xd+ yb+yc+yd$$

$$c) (x+y+z) (b+c+d) = xb+xc+xd+ yb+yc+yd+zb+zc+zd$$

$$d) (a+b) (a+b+c) = aa+ab+ac+ba+bb+bc \\ = a^2 + 2ab+ b^2 + ac+bc$$

B38)

$$a) \frac{a^5}{a^2} = a^{5-2} = a^3$$

$$b) \frac{a^3 b^2 c^4}{a^2 bc} = a^{3-2} b^{2-1} c^{4-1} = abc^2$$

$$c) \frac{a^3 bc}{a^2 b^2 c^2} = a^{3-2} b^{1-2} c^{1-2} = ab^{-1} c^{-1} = \frac{a}{bc}$$

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$$\frac{a^3 bc}{a^2 b^2 c^2} = \frac{a^{3-2}}{b^{2-1} c^{2-1}} = \frac{a}{bc}$$

B42)

$$a) \frac{(a+b)^5}{(a+b)^2} = (a+b)^{5-2} = (a+b)^3$$

$$b) \frac{(a+b)^2}{(a+b)^5} = (a+b)^{2-5} = (a+b)^{-3} = \frac{1}{(a+b)^3}$$