

1. (1) $5a - 3b - 4a + 2b = 5a - 4a - 3b + 2b = a - b$
 (2) $x^2 - 2x + 5 + 2x + x^2 - 6 = x^2 + x^2 - 2x + 2x + 5 - 6 = 2x^2 - 1$
 (3) $0.2x - 0.4y - (0.5x - 0.7y) = 0.2x - 0.5x - 0.4y + 0.7y = -0.3x + 0.3y$
 (4) $\frac{a}{3} + \frac{b}{2} - \frac{a}{2} - \frac{2}{3}b = \frac{1}{3}a - \frac{1}{2}a + \frac{1}{2}b - \frac{2}{3}b = \frac{2}{6}a - \frac{3}{6}a + \frac{3}{6}b - \frac{4}{6}b = -\frac{1}{6}a - \frac{1}{6}b$
 (5) $5(x - 2y - 1) - 3(x + 2y - 1) = 5x - 10y - 5 - 3x - 6y + 3$

$$= 5x - 3x - 10y - 6y - 5 + 3 = 2x - 16y - 2$$

(6) $\begin{array}{r} -4x+5y \\ +) 2x-3y \\ \hline -2x+2y \end{array}$	(7) $\begin{array}{r} 2x- y+5 \\ -) -x+4y-3 \\ \hline 3x-5y+8 \end{array}$
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(8) $x \times (-3y) = -3xy$

(9) $-14x^2 \div 7x = -\frac{14x^2}{7x} = -2x$

(10) $(-3x)^2 = (-3x) \times (-3x) = 9x^2$

(11) $(-2a)^2 \div (-4a^2) = (-2a) \times (-2a) \div (-4a^2) = 4a^2 \div (-4a^2) = -1$

(12) $-12ab \div \frac{4}{3}a = -12ab \times \frac{3}{4a} = -9b$

(13) $(-30xy^2) \div 2xy \times (-3x) = 30xy^2 \times \frac{1}{2xy} \times 3x = 45xy$

2. (1) $L = 2\pi r$ $[r]$ $r = \frac{L}{2\pi}$

(2) $S = \frac{(a+b)h}{2}$ $[a]$ $(a+b)h = 2S \rightarrow a+b = \frac{2S}{h} \rightarrow a = \frac{2S}{h} - b$

3. 連続する3つの整数は

$$n-1 \quad n \quad n+1 \quad \text{と表すことができる。}$$

その和は

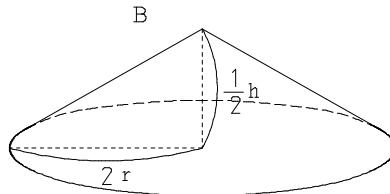
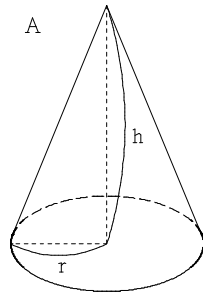
$$n-1 + n + n+1 = 3n = 3 \times \text{整数となるから, } 3\text{の倍数となる。}$$

4. 円錐Aの体積＝底面積×高さ× $\frac{1}{3} = \pi r^2 \times h \times \frac{1}{3} = \frac{1}{3} \pi r^2 h$

円錐Bの底面の半径＝ $2r$, 高さ＝ $\frac{1}{2}h$

円錐Bの体積＝ $\pi(2r)^2 \times \frac{1}{2}h \times \frac{1}{3} = \pi \times 4r^2 \times \frac{1}{2}h \times \frac{1}{3} = \frac{2}{3} \pi r^2 h$

以上より、円錐Aの体積は円錐Bの体積の半分である。



式の計算 2 解答

1. (1) $(-2a + 4ab) \times (-5b) = 10ab - 20a^2b$

(2) $(15x^2y + 6xy^2) \div 3xy = \frac{15x^2y}{3xy} + \frac{6xy^2}{3xy} = 5x + 2y$

(3) $(3x + y)(x + 2y) = 3x^2 + 6xy + xy + 2y^2 = 3x^2 + 7xy + 2y^2$

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

(5) $(2x - 5)^2 = (2x)^2 - 2 \times 2x \times 5 + 5^2 = 4x^2 - 20x + 25$

(6) $(4 - x)(4 + x) = 4^2 - x^2 = 16 - x^2$

(7) $\left(x - \frac{1}{2}\right)\left(x + \frac{1}{3}\right) = x^2 + \left(-\frac{1}{2} + \frac{1}{3}\right)x - \frac{1}{2} \times \frac{1}{3} = x^2 - \frac{1}{6}x - \frac{1}{6}$

(8) $(3x - 2y)(3x - 4y) = (3x)^2 + (-2y - 4y) \times 3x - 2y \times (-4y) = 9x^2 - 18xy + 8y^2$

(9) $(x - 3)(x + 2y - 1) = x^2 + 2xy - x - 3x - 6y + 3 = x^2 + 2xy - 4x - 6y + 3$

(10) $(x - 3)^2 - (x + 4)(x - 5) = x^2 - 6x + 9 - (x^2 - x - 20)$
 $= x^2 - 6x + 9 - x^2 + x + 20 = -5x + 29$

2. (1) $3x^2 - 15x = 3x(x - 5)$
 (2) $49x^2 - 36y^2 = (7x + 6y)(7x - 6y)$
 (3) $x^2 + 12x + 35 = (x + 5)(x + 7)$
 (4) $x^2 - 11x + 30 = (x - 5)(x - 6)$
 (5) $0.25 - 4x^2 = (0.5 + 2x)(0.5 - 2x)$
 (6) $36x^2 - 12x + 1 = (6x - 1)^2$
 (7) $x^2 + \frac{2}{3}x + \frac{1}{9} = \left(x + \frac{1}{3}\right)^2$
 (8) $x^2 + 7xy + 12y^2 = (x + 3y)(x + 4y)$
 (9) $9x^2 - 81 = 9(x^2 - 9) = 9(x + 3)(x - 3)$
 (10) $x^2y - xy - 12y = y(x^2 - x - 12) = y(x + 3)(x - 4)$

3. (1) $150 = 2 \times 3 \times 5^2$

(2) $360 = 2^3 \times 3^2 \times 5^1$

を n でわって、すべて偶数乗または 1 になるようにすればよい。

$$n = 2 \times 5 \quad \text{のとき} \quad \frac{360}{n} = 2^2 \times 3^2$$

$$n = 2^3 \times 5 \quad \text{のとき} \quad \frac{360}{n} = 3^2$$

$$n = 2 \times 3^2 \times 5 \quad \text{のとき} \quad \frac{360}{n} = 2^2$$

$$n = 2^3 \times 3^2 \times 5 \quad \text{のとき} \quad \frac{360}{n} = 1^2$$

$$n = 10, 40, 90, 360$$

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

に $x = 29, y = 3$ を代入して $(29 - 9)^2 = 20^2 = 400$

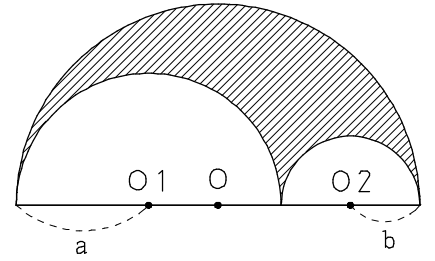
(4) $99 \times 101 = (100 - 1)(100 + 1) = 100^2 - 1^2 = 10000 - 1 = 9999$

4. (1) 半円0の半径は $(2a + 2b) \div 2 = a + b$

(半円0の弧) + (半円01の弧) + (半円02の弧)

$$= \frac{2\pi(a+b)}{2} + \frac{2\pi a}{2} + \frac{2\pi b}{2}$$

$$= \pi a + \pi b + \pi a + \pi b = 2\pi a + 2\pi b$$



(2) (半円0の面積) - (半円01の面積) - (半円02の面積)

$$= \frac{\pi(a+b)^2}{2} - \frac{\pi a^2}{2} - \frac{\pi b^2}{2} = \frac{\pi}{2}(a^2 + 2ab + b^2 - a^2 - b^2)$$

$$= \frac{\pi}{2} \times 2ab = \pi ab$$

以上