1. $(-x^2y - xy^2) \div (-xy)$ 를 간단히 한 것은?

① $x + y$　② $x - y$　③ $-x + y$

④ $-x - y$　⑤ x

해설

$$(-x^2y - xy^2) \div (-xy) = (-x^2y - xy^2) \times \left(-\frac{1}{xy}\right)$$
$$= x + y$$

2. $3x(x-1)-4x(x-3)-(7x^2-x+1)$ 을 간단히 하였을 때, x^2 의 계수와 상수항의 합을 구하여라.

▶ 답:

▷ 정답: -9

해설

(준식) $= -8x^2+10x-1$

$\therefore\ -8+(-1)=-9$

3. $(-8x+4y)\div(-2)=ax+by$ 일 때, $a+b$ 의 값은?

① -2 ② -1 ③ 0 ④ 1 ⑤ 2

해설

$(-8x+4y)\div(-2)$

$=\dfrac{-8x+4y}{-2}$

$=4x-2y=ax+by$

$\therefore\ a=4,\ b=-2$

$\therefore a+b=2$

4. 다음 식을 간단히 하면?

$$\left(-\frac{2}{3}a^2b+\frac{3}{4}ab-\frac{1}{2}ab^2\right)\div\left(-\frac{3}{2}ab\right)$$

① $\frac{1}{9}a-\frac{1}{4}+\frac{1}{3}b$ ② $\frac{2}{9}a-\frac{1}{2}+\frac{1}{3}b$ ③ $\frac{4}{9}a-\frac{1}{2}+\frac{1}{3}b$
④ $\frac{1}{3}a-\frac{1}{2}+\frac{1}{9}b$ ⑤ $\frac{1}{9}a-\frac{1}{3}+\frac{1}{2}b$

해설

$$\left(-\frac{2}{3}a^2b+\frac{3}{4}ab-\frac{1}{2}ab^2\right)\div\left(-\frac{3}{2}ab\right)$$
$$=\left(-\frac{2}{3}a^2b+\frac{3}{4}ab-\frac{1}{2}ab^2\right)\times\left(-\frac{2}{3ab}\right)$$
$$=\frac{4}{9}a-\frac{1}{2}+\frac{1}{3}b$$

5. $(12x^3y^2+4xy)\div\frac{4}{3}xy$ 를 간단히 하면?

① $9x^2y+3$ ② $9x^2y+3xy$ ③ $9x^3y^2+3xy$

④ $12x^2y+4$ ⑤ $12x^2y+4xy$

해설

$$(12x^3y^2+4xy)\div\frac{4}{3}xy=12x^3y^2\times\frac{3}{4xy}+4xy\times\frac{3}{4xy}$$
$$=9x^2y+3$$

6. $(6a^2b-4ab^2)\div\left(-\frac{b}{2}\right)$ 을 간단히 하면?

① $3a^2-2ab^3$ ② $12b^2-8a^2$ ③ $-12a^2+8ab$

④ $-3a^2+2b$ ⑤ a^2b^2-ab

해설

$$(6a^2b-4ab^2)\div\left(-\frac{b}{2}\right)=(6a^2b-4ab^2)\times\left(-\frac{2}{b}\right)$$
$$=-12a^2+8ab$$

7. $2x(x-1)-3x(2x-3)-(-7x^2+x-2)$ 를 간단히 하면?

① $3x^2+6x+2$ ② $3x^2-6x+2$ ③ $3x^2+6x-2$

④ $-3x^2+6x+2$ ⑤ $3x^2-6x-2$

해설

$2x(x-1)-3x(2x-3)-(-7x^2+x-2)$

$=2x^2-2x-6x^2+9x+7x^2-x+2$

$=3x^2+6x+2$

8. $\frac{3}{2}x(2x-4y)-5x(x-y)$ 를 간단히 하면?

① $-2x^2-xy$ ② $-2x^2-11xy$ ③ $8x^2+11xy$

④ $8x^2-xy$ ⑤ x^2+xy

해설

$\frac{3}{2}x(2x-4y)-5x(x-y)=3x^2-6xy-5x^2+5xy=-2x^2-xy$

9. $a=1,\ b=3$ 일 때, $2a(5a-3b)-4a(3a-2b)$ 의 값은?

① 0 ② 1 ③ 2 ④ 3 ⑤ 4

해설

$2a(5a-3b)-4a(3a-2b)=10a^2-6ab-12a^2+8ab=-2a^2+2ab$

$\therefore\ -2a^2+2ab=-2+6=4$

10. $(15x^2+9xy)\div 3x+(25y^2-5xy)\div 5y$ 를 간단히 하면?

① $4x+8y$ ② $8x+4y$ ③ $10x+2y$

④ $10x+8y$ ⑤ $14y$

해설

$(15x^2+9xy)\div 3x+(25y^2-5xy)\div 5y$

$=5x+3y+5y-x$

$=4x+8y$

11. 다음 계산 중 옳지 않은 것은?

① $-(2a-b) = -2a+b$

② $-2y(x+3y) = -6y^2 - 2xy$

③ $2y(5y-3) = 10y^2 - 6y$

④ $-2x(3x-4y) + y(x+5y) = -6x^2 + 10xy + 5y^2$

⑤ $-2x(4x-3y) - y(x-3y+1) = -8x^2 + 5xy + 3y^2 - y$

해설

④ $-2x(3x-4y) + y(x+5y) = -6x^2 + 9xy + 5y^2$

12. 다음 계산 중 옳은 것을 모두 고르면?

① $-(a-5b)=a+5b$

② $-x(-3x+y)=3x^2-xy$

③ $2x(3x-6)=6x^2-6x$

④ $3x(2x-3y)-2y(x+y)=6x^2-11xy-2y^2$

⑤ $-x(x-y+2)+3y(2x+y+4)=-x^2+7xy-2x+3y^2+12y$

해설

① $-(a-5b)=-a+5b$
③ $2x(3x-6)=6x^2-12x$

13. $\frac{x}{6}(12x+24)-\frac{x}{12}(36-12x)=Ax^2+Bx$ 라 할 때, A − B 의 값은?

① 1　② 2　③ 3　④ 4　⑤ 5

해설

(준식) $=2x^2+4x-(3x-x^2)$

$=3x^2+x=Ax^2+Bx$

$A=3,\ B=1$

$\therefore A-B=2$

14. $\frac{x}{3}(6-3x)-\frac{x}{2}(6x-8)-3x=Ax^2+Bx$ 라 할 때, $2A+3B$ 의 값을 구하여라.

▶ 답:

▷ 정답: 1

해설

$$\begin{aligned}(\text{준식}) &= 2x-x^2-(3x^2-4x)-3x \\ &= -4x^2+3x=Ax^2+Bx\end{aligned}$$

$A=-4,\ B=3$

$\therefore 2A+3B=2\times(-4)+3\times 3=1$

15. $(6x^2y^2 - 4xy^2 + 3x^2y - 5xy) \div xy$ 를 간단히 할 때, 모든 계수의 합을 구하여라.

▶ 답:

▷ 정답: 0

해설

$$(6x^2y^2 - 4xy^2 + 3x^2y - 5xy) \div xy$$
$$= \frac{6x^2y^2}{xy} + \frac{-4xy^2}{xy} + \frac{3x^2y}{xy} + \frac{-5xy}{xy}$$
$$= 6xy - 4y + 3x - 5$$

xy 의 계수 : 6
y 의 계수 : -4
x 의 계수 : 3
상수항 : -5
$\therefore\ 6 - 4 + 3 - 5 = 0$

16. $(15ab-5a)\div 5a+4b^2\div\left(-\frac{2}{3}b\right)$ 를 계산하여라.

▶ 답:

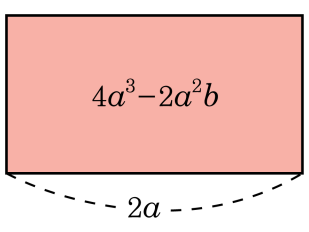
▷ 정답: $-3b-1$

해설

$(15ab-5a)\div 5a+4b^2\div\left(-\frac{2}{3}b\right)$

$=3b-1-6b=-3b-1$

17. 밑면의 가로의 길이가 $2a$ 인 직사각형의 넓이가 $4a^3 - 2a^2b$ 일 때, 세로의 길이는?



① $a^2 - a$ ② $2a^2 + a$ ③ $2a^2 - b$

④ $2a^2 - ab$ ⑤ $2a^2 + ab$

해설

$2a \times (\text{세로의 길이}) = 4a^3 - 2a^2b$

$$\therefore (\text{세로의 길이}) = \frac{4a^3 - 2a^2b}{2a} = \frac{4a^3}{2a} + \frac{-2a^2b}{2a} = 2a^2 - ab$$

18. 다음 중 옳은 것은?

① $6x^3 \div (-2x)^2 = -12x^5$

② $-4x^5 \div 2x^3 = -2x^2$

③ $8a^4b^2 \div 2(ab)^2 = 2a^2$

④ $(x^2 + x) \div \frac{1}{2}x = \frac{1}{2}x + \frac{1}{2}$

⑤ $(4x^2 - y^2) \div (-2y) = -8x^2y + 2y^3$

해설

① $6x^3 \div (-2x)^2 = 6x^3 \div 4x^2 = \frac{3}{2}x$

② $-4x^5 \div 2x^3 = -2x^{5-3} = -2x^2$

③ $8a^4b^2 \div 2(ab)^2 = 8a^4b^2 \div 2a^2b^2 = 4a^2$

④ $(x^2 + x) \div \frac{1}{2}x = (x^2 + x) \times \frac{2}{x} = 2x + 2$

⑤ $(4x^2 - y^2) \div (-2y) = -\frac{2x^2}{y} + \frac{1}{2}y$

19. 다음 식 $\frac{2}{3}x(5-2x)$ 를 간단히 하면?

① $-\frac{4}{3}x^2+\frac{10}{3}x$ ② $-\frac{4}{3}x^2+\frac{5}{3}x$ ③ $\frac{2}{3}x^2-\frac{5}{3}x$
④ $\frac{2}{3}x^2+\frac{4}{3}x$ ⑤ $\frac{2}{3}x^2+\frac{10}{3}x$

해설

$\frac{2}{3}x\times 5+\frac{2}{3}x\times(-2x)=\frac{10}{3}x-\frac{4}{3}x^2$

20. $a=-2,\ b=-\frac{2}{5}$ 일 때, 다음 식의 값을 구하여라.

$4a(a-2b)-a(2a-3b)$

▶ 답 :

▷ 정답 : 4

해설

(준식) $=4a^2-8ab-2a^2+3ab=2a^2-5$

$\therefore 2a^2-5ab=8-4=4$

21. $(3x^2 - 9xy) \div 3x - (6xy - 8y^2) \div (-2y)$ 를 계산하면?

① $4x - 7y$ ② $4x + 7y$ ③ $2x - 7y$

④ $2x + 7y$ ⑤ $2x - y$

해설

$(3x^2 - 9xy) \div 3x - (6xy - 8y^2) \div (-2y)$

$\frac{3x^2}{3x} - \frac{9xy}{3x} - \frac{6xy}{-2y} - \frac{-8y^2}{-2y}$

$= x - 3y + 3x - 4y = 4x - 7y$

22. $-(-15ab-9ac)\div(-3a)$ 를 간단히 하면?

① $-5a-3c$ ② $5b+3c$

③ $-5b-3c$ ④ $-5b+3c$

⑤ $-45a^2b+27a^2c$

해설

$(15ab+9ac)\div(-3a)$

$=15ab\div(-3a)+9ac\div(-3a)$

$=-5b-3c$

23. $\left(-6x^2y+12xy-18y^2\right)\div\frac{3}{4}y$ 을 간단히 하면?

① $-9x^2y^2+9xy^2-\frac{27}{2}y^3$ ② $-8x^2y^2+16xy^2-24y^3$

③ $-\frac{3}{2}x^2+9x-\frac{27}{2}y$ ④ $-8x^2+16x-24y$

⑤ $-\frac{3}{2}x^2y^2+9xy-\frac{27}{2}y^2$

해설

$\left(-6x^2y+12xy-18y^2\right)\div\frac{3}{4}y$

$=\left(-6x^2y+12xy-18y^2\right)\times\frac{4}{3y}$

$=(-6x^2y)\times\frac{4}{3y}+12xy\times\frac{4}{3y}-18y^2\times\frac{4}{3y}$

$=-8x^2+16x-24y$

24. $(6x^2y - 4xy^2) \div (-\frac{2}{3}xy)$ 을 간단히 하면?

① $9x + 6y$
② $9x + 6y^2$
③ $-9x + 6y$
④ $-9x^3y^2 + 6x^2y^3$
⑤ $9x^3y^2 - 6x^2y^3$

해설

$(6x^2y - 4xy^2) \div (-\frac{2}{3}xy) = (6x^2y - 4xy^2) \times (-\frac{3}{2xy}) = -9x + 6y$

25. $(15x^2+9xy)\div 3x+(25y^2-5xy)\div 5y$ 를 간단히 하면?

① $4x+8y$ ② $8x+4y$ ③ $10x+2y$

④ $10x+8y$ ⑤ $14y$

해설

$(15x^2+9xy)\div 3x+(25y^2-5xy)\div 5y=5x+3y+5y-x=4x+8y$