1. $\dfrac{x-2}{2x^2-5x+3}+\dfrac{3x-1}{2x^2+x-6}+\dfrac{2x^2-5}{x^2+x-2}$ 을 계산하여라.

답:

2. 분수식 $\dfrac{1}{x^2+x-2}-\dfrac{x+1}{x^2-4x+3}\div\dfrac{2x^2+5x+3}{x^2-5x+6}$을 간단히 하면 ?

① 1 ② -2

③ $\dfrac{-x^2+2x+7}{(x-1)(x+2)(2x+3)}$ ④ $\dfrac{x^2-2x+7}{(x-1)(x+2)(2x+3)}$

⑤ $\dfrac{-x^2+2x+7}{(x+1)(x-2)(2x-3)}$

3. $\dfrac{x+1}{x(x-1)} = \dfrac{a}{x} + \dfrac{b}{x-1}$ 가 x 에 대한 항등식일 때, 상수 a^2+b^2 의 값을 구하여라.

답: _____

4. 분수식 $\dfrac{1}{x(x+1)}+\dfrac{1}{(x+1)(x+2)}$을 간단히 하면?

① $\dfrac{2}{x(x+1)}$　② $\dfrac{1}{x(x+2)}$　③ $\dfrac{1}{x(x+1)}$

④ $\dfrac{2}{x(x+2)}$　⑤ $\dfrac{3}{x(x+2)}$

5. $\frac{1}{1\cdot 2}+\frac{1}{2\cdot 3}+\frac{1}{3\cdot 4}+\frac{1}{4\cdot 5}+\cdots+\frac{1}{99\cdot 100}$을 간단히 하면?

① $\frac{98}{99}$ ② $\frac{100}{99}$ ③ $\frac{99}{100}$ ④ $\frac{101}{100}$ ⑤ $\frac{100}{101}$

6. 다음 식을 간단히 한 식은?

$$\frac{1}{1-\dfrac{1}{1-\dfrac{1}{a}}}$$

① $a+1$ ② $a+2$ ③ $-a+1$

④ $-a+2$ ⑤ $a-1$

7. $\dfrac{2^{1}+2^{0}+2^{-1}}{2^{-2}+2^{-3}+2^{-4}}$ 를 풀면?

① 6 ② 8 ③ $\dfrac{31}{2}$ ④ 24 ⑤ 512

8. $\dfrac{x^3-x}{x^2-x}+\dfrac{x^4-1}{x^2-1}-\dfrac{x^2-2x-3}{x+1}\times\dfrac{x+2}{x^2-x-6}$을 계산하면?

① x^2+x+1　② $\dfrac{x^2+1}{x-1}$　③ $\dfrac{2x}{x^2-1}$

④ x^2-1　⑤ $\dfrac{2x-1}{x^2-x}$

9. $\left(1-\frac{1}{2^2}\right)\left(1-\frac{1}{3^2}\right)\cdots\left(1-\frac{1}{9^2}\right)\left(1-\frac{1}{10^2}\right)$을 간단히 하면?

① $\frac{5}{12}$ ② $\frac{1}{2}$ ③ $\frac{11}{20}$ ④ $\frac{2}{3}$ ⑤ $\frac{7}{10}$

10. $\dfrac{1}{a(a+1)}+\dfrac{2}{(a+1)(a+3)}+\dfrac{3}{(a+3)(a+6)}$을 간단히 한 것은 ?

① $\dfrac{1}{a}+\dfrac{6}{a+6}$ ② $\dfrac{1}{a}+\dfrac{1}{a+6}$ ③ $\dfrac{1}{a}-\dfrac{1}{a+6}$

④ $\dfrac{1}{a}-\dfrac{6}{a+6}$ ⑤ $\dfrac{2}{a}-\dfrac{1}{a+6}$

11. 분수식 $\dfrac{x^2}{(x-y)(x-z)}+\dfrac{y^2}{(y-x)(y-z)}+\dfrac{z^2}{(z-x)(z-y)}$ 를 간단히 하여 라.

답: _____

12. 다음 식을 간단히 하면?

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

① $\frac{8x^4}{1-x^4}$ ② $\frac{8}{1-x^4}$ ③ $\frac{8x^4}{1-x^8}$
④ $\frac{8}{1-x^8}$ ⑤ $\frac{8x^4}{1+x^8}$

13. $x=\dfrac{a}{b}$, $a\neq b$, $b\neq 0$ 일 때, $\dfrac{a+b}{a-b}$ 는?

① $\dfrac{x}{x+1}$ ② $\dfrac{x+1}{x-1}$ ③ 1 ④ $x-\dfrac{1}{x}$ ⑤ $x+\dfrac{1}{x}$

14. $\dfrac{x+3}{(x+1)(x+2)} = \dfrac{a}{x+1} + \dfrac{b}{x+2}$을 만족할 때, $a^2 + b^2$의 값을 구하여라.

답:

15. 등식 $\dfrac{x^2+1}{x^3-6x^2+11x-6} = \dfrac{a}{x-1} + \dfrac{b}{x-2} + \dfrac{c}{x-3}$ 이 x에 대한 항등식이 되도록 상수 a, b, c에 대하여 abc의 값을 구하여라.

답: _____

16. 등식 $\frac{a}{x}-\frac{b}{x+1}=\frac{1}{x(x+1)}$이 x에 대한 항등식일 때, 상수 a, b의 합을 구하면?

① 0 ② 1 ③ 2 ④ 3 ⑤ 4

17. 분수식 $\dfrac{x}{x+1}+\dfrac{2x-1}{x-1}-\dfrac{3x^2+4x+2}{x^2+x}$를 간단히 하면?

① $-\dfrac{x-2}{x(x-1)}$ ② $\dfrac{x+2}{x(x+1)}$ ③ $\dfrac{x-2}{x(x+1)}$
④ $\dfrac{x+2}{x(x-1)}$ ⑤ $\dfrac{x-2}{x(x-1)}$

18. $\frac{x+2}{x+1}-\frac{x+3}{x+2}-\frac{x+4}{x+3}+\frac{x+5}{x+4}$를 간단히 하면?

① $\frac{2(2x+5)}{(x+1)(x+2)(x+3)(x+4)}$

② $\frac{2}{(x+1)(x+2)(x+3)(x+4)}$

③ $\frac{2x}{(x+1)(x+2)(x+3)(x+4)}$

④ $\frac{2(x-1)}{(x+1)(x+2)(x+3)(x+4)}$

⑤ $\frac{2(x-2)}{(x+1)(x+2)(x+3)(x+4)}$

19. 부분분수를 이용하여 다음을 만족시키는 양수 x 를 구하여라.

$$\frac{1}{x(x+2)}+\frac{1}{(x+2)(x+4)}+\frac{1}{(x+4)(x+6)}+\frac{1}{(x+6)(x+8)}=\frac{4}{9}$$

답: _____

20. $\dfrac{1}{x(x+1)}+\dfrac{x}{(x+1)(2x+1)}+\dfrac{x}{(2x+1)(3x+1)}-\dfrac{2x+1}{x(3x+1)}$ 을 간단히 하면 ?

① -2 ② -1 ③ 0 ④ 1 ⑤ $\dfrac{2}{3}$

21. 분수식

$$\frac{1}{x(x+1)}+\frac{2}{(x+1)(x+3)}+\frac{3}{(x+3)(x+6)}$$
$$+\frac{4}{(x+6)(x+10)}+\frac{5}{(x+10)(x+15)}$$
$$+\frac{6}{(x+15)(x+21)}+\frac{7}{(x+21)(x+28)}$$을 간단히 하면?

① $\frac{28}{x^2+28x}$ ② $\frac{7}{x^2+28x}$ ③ $\frac{7}{x^2+21x}$
④ $\frac{6}{x^2+21x}$ ⑤ $\frac{1}{x^2+21x}$

22. $\frac{1}{2\cdot 4}+\frac{1}{4\cdot 6}+\frac{1}{6\cdot 8}+\cdots+\frac{1}{18\cdot 20}$을 계산한 값은?

① 0 ② $\frac{9}{20}$ ③ 40 ④ $\frac{40}{9}$ ⑤ $\frac{9}{40}$

23. 다음의 식을 간단히 하면?

$$\frac{1}{1+\sqrt{3}}+\frac{1}{\sqrt{3}+\sqrt{5}}+\frac{1}{\sqrt{5}+\sqrt{7}}+\cdots+\frac{1}{\sqrt{119}+\sqrt{121}}$$

① 5 ② 10 ③ 0 ④ −10 ⑤ −5

24. 다음 중 $\frac{1}{6}+\frac{1}{12}+\frac{1}{20}+\frac{1}{30}+\frac{1}{42}$을 간단히 한 것은?

① $\frac{2}{13}$ ② $\frac{4}{13}$ ③ $\frac{5}{14}$ ④ $\frac{23}{30}$ ⑤ $\frac{31}{42}$

25. 분수식 $2-\cfrac{1}{2-\cfrac{1}{2-\cfrac{1}{2-\cdots}}}$ 의 값을 구하면?

① $\frac{1}{2}$ ② 1 ③ $\frac{3}{2}$ ④ $\frac{3}{4}$ ⑤ $\frac{4}{5}$

26. $1-\cfrac{1}{1-\cfrac{1}{1-\cfrac{1}{x}}}=5$을 만족하는 x의 값을 구하여라.

답: _____

27. 분수식 $\dfrac{1}{1-\dfrac{1}{1-\dfrac{1}{a+1}}}$ 을 간단히 하면?

① $-a$ ② a ③ $a-1$

④ $1-a$ ⑤ $2a-1$