1.

$$\frac{9^{19} + 9^{20} + 9^{21}}{9^{19} + 9^{19} + 9^{17}} = \frac{9^{19} \cdot (1 + 9 + 9^2)}{9^{17} \cdot (9^2 + 9 + 1)}$$

$$= \frac{9^{19}}{9^{17}}$$

$$= 9^2$$

$$= 81 \text{ dir.}$$

CEVAP: D

2. $2^4 + 2^5 - 2^6 = 2^4 \cdot (1 + 2 - 2^2)$

$$= 16 \cdot (3 - 4)$$

$$= 16 \cdot (-1)$$

$$= -16 \text{ dır.}$$

CEVAP: B

3.

$$\frac{3^3 + 3^4 + 3^5}{26 \cdot 3^2} = \frac{3^3 \cdot (1 + 3 + 3^2)}{26 \cdot 3^2}$$

$$= \frac{3^3 \cdot \overset{1}{\cancel{13}}}{\underset{2}{\cancel{26}} \cdot 3^2}$$

$$= \frac{3}{2} \text{ dir.}$$

CEVAP: B

4.

$$\frac{12 \cdot 3^5 - 6 \cdot 3^4}{2 \cdot 3^4 + 81} = \frac{6 \cdot 3^4 \cdot (2 \cdot 3 - 1)}{3^4 \cdot (2 + 1)}$$

$$= \frac{6 \cdot 5}{3}$$

$$= 10$$

CEVAP: D

5. $(-2^{-1})^{-2}$ üs çift olduğundan sonuç pozitiftir. Buradan

$$(-2^{-1})^{-2} = +2^2$$

$$= 4 \text{ dür.}$$

CEVAP: D

6. $(0{,}00032) \cdot (25)^4 = 32 \cdot 10^{-5} \cdot (5^2)^4$

$$= 2^5 \cdot 5^{-5} \cdot 2^{-5} \cdot 5^8$$

$$= 2^0 \cdot 5^3$$

$$= 125 \text{ dir.}$$

CEVAP: E

7. $(-2^3)^2 + (-2^2)^3 = 2^{3 \cdot 2} - 2^{2 \cdot 3}$

$$= 2^6 - 2^6$$

$$= 64 - 64$$

$$= 0 \text{ dır.}$$

CEVAP: C

8.

$$\frac{3^{22} \cdot 5^{11}}{45^{10}} = \frac{3^{22} \cdot 5^{11}}{(9 \cdot 5)^{10}}$$

$$= \frac{3^{22} \cdot 5^{11}}{9^{10} \cdot 5^{10}}$$

$$= \frac{\overset{9}{\cancel{3^{22}}} \cdot \overset{5}{\cancel{5^{11}}}}{\underset{}{\cancel{3^{20}}} \cdot \cancel{5^{10}}}$$

$$= 9 \cdot 5$$

$$= 45 \text{ dir.}$$

CEVAP: D

9.

$$\frac{-2^{15}+(-2)^{13}}{5\cdot(-2)^{14}} = \frac{-2^{15}-2^{13}}{5\cdot 2^{14}}$$

$$= \frac{-2^{13}(2^2+1)}{\cancel{5}\cdot 2^{14}}$$

$$= \frac{-2^{13}}{2^{14}}$$

$$= -2^{13-14}$$

$$= -2^{-1}$$

$$= -\frac{1}{2} \text{ dir.}$$

CEVAP: B

10.

$$\frac{(9a^4)^{3m}}{(3a^2)^{4m}} = \frac{9^{3m}\cdot(a^4)^{3m}}{3^{4m}\cdot(a^3)^{4m}}$$

$$= \frac{3^{6m}\cdot a^{12m}}{3^{4m}\cdot a^{12m}}$$

$$= 3^{6m-4m}$$

$$= 3^{2m} \text{ dir.}$$

CEVAP: B

11.

$$\frac{(-0,2)^3}{0,04} + \frac{6}{0,3} = \frac{-0,008}{0,004} + \frac{60}{0,3}$$

$$= -\frac{8}{40} + \frac{60}{3}$$

$$= -\frac{1}{5} + 20$$

$$= \frac{99}{5} \text{ dir.}$$

CEVAP: A

12.

$$\frac{3\cdot10^{-4}+0,5\cdot10^{-3}}{0,4\cdot10^{-5}} = \frac{0,3\cdot10^{-3}+0,5\cdot10^{-3}}{0,004\cdot10^{-3}}$$

$$= \frac{\cancel{10^{-3}}\cdot(0,3+0,5)}{\cancel{10^{-3}}\cdot0,004}$$

$$= \frac{0,8}{0,004}$$

$$= \frac{800}{4}$$

$$= 200 \text{ dür.}$$

CEVAP: E

13.

$$\frac{24}{26\cdot3^{-1}+3^{-3}+3+8\cdot3^{-3}} = \frac{24}{\frac{26}{3}+\frac{1}{27}+3+\frac{8}{27}}$$

$$= \frac{24}{\frac{26}{3}+3+\frac{\overset{1}{\cancel{9}}}{\underset{3}{\cancel{27}}}}$$

$$= \frac{24}{\frac{27}{3}+3}$$

$$= \frac{24}{12}$$

$$= 2 \text{ dir.}$$

CEVAP: B

14.

$$\frac{-3^{-4}:\left(-\frac{1}{3}\right)^{-3}}{\left(\frac{1}{2}\right)^{-3}\cdot(-8)^{-1}} = \frac{-3^{-4}:(-3^{-1})^{-3}}{(2^{-1})^{-3}\cdot(-8)^{-1}}$$

$$= \frac{-3^{-4}:-3^3}{2^3\cdot-8^{-1}}$$

$$= \frac{3^{-7}}{-2^3\cdot2^{-3}}$$

$$= \frac{3^{-7}}{-2^0}$$

$$= -3^{-7}$$

$$= -\frac{1}{3^7} \text{ dir.}$$

CEVAP: A

15.

$$(0,0625)^{-\frac{1}{4}} + 5 \cdot \left(2 + \frac{1}{2}\right)^{-1} + (-2)^2$$

$$= (5^4 \cdot 10^{-4})^{-\frac{1}{4}} + 5 \cdot \left(\frac{5}{2}\right)^{-1} + 4$$

$$= 5^{-1} \cdot 10 + \not{5} \cdot \frac{2}{\not{5}} + 4$$

$$= \frac{10}{5} + 2 + 4$$

$$= 2 + 2 + 4$$

$$= 8 \text{ dir.}$$

CEVAP: E

16.

$$\left[\left(4^{-\frac{3}{2}}\right)^{-2}\right]^{\frac{1}{6}} = 4^{\left(-\frac{3}{2}\right) \cdot (-2) \cdot \frac{1}{6}}$$

$$= 4^{\frac{1}{2}}$$

$$= (2^2)^{\frac{1}{2}}$$

$$= 2 \text{ dir.}$$

CEVAP: D

17.

$$27^4 = 243^3 \cdot x$$

$$x = \frac{27^4}{243^3}$$

$$x = \frac{(3^3)^4}{(3^5)^3}$$

$$x = \frac{3^{12}}{3^{15}}$$

$$x = 3^{12-15}$$

$$x = 3^{-3}$$

$$x = \frac{1}{27}$$

CEVAP: E

18. $2^n + 2^{n+1} + 2^{n+2} = 2^n \cdot (1 + 2 + 2^2)$

$$= 2^n \cdot 7 \text{ dir.}$$

CEVAP: D

19. $2^9 \cdot 5^7 = 2^2 \cdot 2^7 \cdot 5^7$

$$= 4 \cdot (2 \cdot 5)^7$$

$$= 4 \cdot 10^7$$

Sayısı $7 + 1 = 8$ basamaklıdır.

CEVAP: C

20. $32^5 \cdot 81^3 \cdot 64^7 \cdot 625^5 = 2^{25} \cdot 3^{12} \cdot 2^{42} \cdot 5^{20}$

$$= 2^{25} \cdot 3^{12} \cdot 2^{22} \cdot 2^{20} \cdot 5^{20}$$

$$= 2^{47} \cdot 3^{12} \cdot 10^{20}$$

olduğundan sondan 20 basamağı sıfırdır.

CEVAP: A