1. $\left.\begin{array}{l} a.x + 2.y = 7 \\ (a+2).x + (b-1).y = 14 \end{array}\right\}$ denklem sisteminin sonsuz çözümü var ise;

$$\frac{a}{a+2} = \frac{2}{b-1} = \frac{7}{14} = \frac{1}{2}$$

$$\left.\begin{array}{l} \dfrac{a}{a+2} = \dfrac{1}{2} \Rightarrow 2a = a+2 \Rightarrow \boxed{a=2} \\ \dfrac{2}{b-1} = \dfrac{1}{2} \Rightarrow b-1 = 4 \Rightarrow \boxed{b=5} \end{array}\right\} \Rightarrow a.b = 2.5 = \boxed{10}$$

Cevap: D

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

$$\frac{x}{x+1} + \frac{\cancel{2}+x-\cancel{2}}{x} = \frac{5}{4} \Rightarrow \frac{x}{x+1} + 1 = \frac{5}{4}$$

$$\Rightarrow \frac{x}{x+1} = \frac{1}{4}$$

$$\Rightarrow 4x = x + 1$$

$$\Rightarrow 3x = 1 \Rightarrow \boxed{x = \frac{1}{3}}$$

Cevap: B

3. $\left.\begin{array}{l} \dfrac{1}{x} - 3 = y \Rightarrow \dfrac{1-3x}{x} = y \Rightarrow 1 - 3x = x.y \\ \dfrac{1}{y} - 5 = x \Rightarrow \dfrac{1-5y}{y} = x \Rightarrow 1 - 5y = x.y \end{array}\right\} \Rightarrow$

$$\Rightarrow \cancel{1} - 3x = \cancel{1} - 5y \Rightarrow 3x = 5y \Rightarrow x = 5k,\ y = 3k$$

$$\Rightarrow \frac{x+y}{x-y} = \frac{5k+3k}{5k-3k} = \frac{8k}{2k} = \boxed{4}$$

Cevap: D

4. $\left.\begin{array}{l} b - a = 4 \\ y + x + b = 51 \\ c + y = 51 \\ a + x + 23 = 51 \end{array}\right\} \Rightarrow c = ?$

$$\left.\begin{array}{l} \cancel{y} + x + b = c + \cancel{y} \Rightarrow {}^{-1}/\,x + b = c \\ a + x + 23 = 51 \Rightarrow x + a = 28 \end{array}\right\} \Rightarrow \begin{array}{r} -\cancel{x} - b = -c \\ +\ \cancel{x} + a = 28 \\ \hline a - b = 28 - c \end{array}$$

$$b - a = 4 \Rightarrow a - b = -4 = 28 - c \Rightarrow \boxed{c = 32}$$

Cevap: D

5. $\left.\begin{array}{l} 2\sqrt{x} + 3\sqrt{y} = 16 \\ 4x - 9y = 64 \end{array}\right\} \Rightarrow x.y = ?$

$$4x - 9y = (2\sqrt{x} - 3\sqrt{y}).\underbrace{(2\sqrt{x} + 3\sqrt{y})}_{16} = 64 \quad \text{(İki kare farkı)}$$

$$\Rightarrow \begin{array}{r} 2\sqrt{x} - \cancel{3\sqrt{x}} = 4 \\ +\ 2\sqrt{x} + \cancel{3\sqrt{x}} = 16 \\ \hline 4\sqrt{x} = 20 \Rightarrow \sqrt{x} = 5 \Rightarrow \boxed{x = 25} \end{array}$$

$$2\sqrt{x} - 3\sqrt{y} = 4 \Rightarrow 2.5 - 3\sqrt{y} = 4 \Rightarrow 3\sqrt{y} = 6$$

$$\Rightarrow \sqrt{y} = 2$$

$$\boxed{y = 4}$$

$$\Rightarrow x.y = 25.4 = \boxed{100}$$

Cevap: A

6. $\left.\begin{array}{l} 2a+b-c=-7 \\ a+b-2c=-6 \\ 3a-2b+c=-9 \end{array}\right\} \Rightarrow a=?$

$$\begin{array}{r} 2a+b-\cancel{c}=-7 \\ +\ 3a-2b+\cancel{c}=-9 \\ \hline 5a-b=-16 \end{array} \qquad \begin{array}{r} a+b-2c=-6 \\ 2/\ 3a-2b+c=-9 \\ \hline \end{array}$$

$$\begin{array}{r} a+b-\cancel{2c}=-6 \\ +\ 6a-4b+\cancel{2c}=-18 \\ \hline 7a-3b=-24 \end{array}$$

$$\Rightarrow \left.\begin{array}{r} -3/\ 5a-b=-16 \\ 7a-3b=-24 \end{array}\right\} \Rightarrow \begin{array}{r} -15a+\cancel{3b}=48 \\ +\ 7a-\cancel{3b}=-24 \\ \hline -8a=24 \\ \boxed{a=-3} \end{array}$$

Cevap: A

7. $\left.\begin{array}{r} x-2y=-1 \\ 2/\ 2x+y=3 \end{array}\right\} \Rightarrow \begin{array}{r} x-\cancel{2y}=-1 \\ +\ 4x+\cancel{2y}=6 \\ \hline 5x=5 \Rightarrow \boxed{x=1} \end{array}$

$2x+y=3 \Rightarrow 2+y=3 \Rightarrow \boxed{y=1}$

$$\Rightarrow \frac{2x^2-3xy-4y^2}{\frac{x}{3}+\frac{y}{2}} = \frac{2.1^2-3.1.1-4.1^2}{\underset{(2)}{\frac{1}{3}}+\underset{(3)}{\frac{1}{2}}} = \frac{2-3-4}{\frac{5}{6}}$$

$$= -\cancel{5}\cdot\frac{6}{\cancel{5}}$$

$$= \boxed{-6}$$

Cevap: D

8. $x, y \in Z^+$

$$\underset{\downarrow}{\left(\frac{1}{x-5}\right)} + \underset{\downarrow}{\left(\frac{1}{12-2y}\right)} = 1 \Rightarrow x+y=?$$

$$\left(\frac{1}{2}\right) + \left(\frac{1}{2}\right) = 1$$

$$\Rightarrow \frac{1}{x-5}=\frac{1}{2} \Rightarrow x-5=2 \Rightarrow \boxed{x=7}$$

$$\frac{1}{12-2y}=\frac{1}{2} \Rightarrow 12-2y=2 \Rightarrow 2y=10 \Rightarrow \boxed{y=5}$$

$$\Rightarrow x+y=7+5=\boxed{12}$$

Cevap: E

9. $a, b, c \in R$

$$\left.\begin{array}{r} a+2b-3c=10 \\ 3a+6b+c=20 \\ +\ a-3b+7c=10 \\ \hline 5a+5b+5c=40 \end{array}\right\} \Rightarrow a+b+c=?$$

$$\Rightarrow 5.(a+b+c)=40$$

$$\Rightarrow a+b+c=\boxed{8}$$

Cevap: E

10. $x, y \in R,$

$(x+y-15)^2+(x-y-3)^2=0 \Rightarrow \frac{x}{y}=?$

$$\begin{array}{rl} x+y-15=0 \Rightarrow & x+\cancel{y}=15 \\ x-y-3=0 \Rightarrow & +\ x-\cancel{y}=3 \\ \hline & 2x=18 \\ & \boxed{x=9} \Rightarrow x+y=15 \\ & 9+y=15 \Rightarrow \boxed{y=6} \end{array}$$

$$\Rightarrow \frac{x}{y}=\frac{9}{6}=\boxed{\frac{3}{2}}$$

Cevap: E

11. $x, y \in Z$

$2x^3 - 5xy^2 = 4a \rightarrow x.(2x^2 - 5y^2) = 4a$ (−1)

$5y^3 - 2x^2y = 9a \rightarrow y.(5y^2 - 2x^2) = 9a$

$\Rightarrow \frac{-x}{y} = \frac{4}{9} \Rightarrow \boxed{x = -4k}, \boxed{y = 9k}$

$\Rightarrow \frac{4x - y}{-4y + x} = \frac{-16k - 9k}{-36k - 4k} = \frac{-25k}{-40k} = \frac{5}{8}$

Cevap: C

12. $x - \frac{3}{y} = 4 \Rightarrow \frac{xy - 3}{y} = 4 \Rightarrow xy - 3 = 4y$

$y - \frac{3}{x} = 6 \Rightarrow \frac{xy - 3}{x} = 6 \Rightarrow xy - 3 = 6x$ $\Rightarrow$

$\Rightarrow 4y = 6x \Rightarrow 2y = 3x$

$\downarrow \quad \downarrow$

$3k \quad 2k$

$\Rightarrow \frac{x}{y} + \frac{y}{x} = \frac{2}{3} + \frac{3}{2} = \boxed{\frac{13}{6}}$

Cevap: C

13. $\frac{x+9}{x-2} - \frac{2x}{x+1} = 5 - \frac{11}{2-x} = 5 + \frac{11}{x-2}$

$\Rightarrow \underbrace{\frac{x+9}{x-2} - \frac{11}{x-2}} - \frac{2x}{x+1} = 5$

$\Rightarrow \frac{x-2}{x-2} - \frac{2x}{x+1} = 5$

$\Rightarrow 1 - \frac{2x}{x+1} = 5$

$\Rightarrow \frac{2x}{x+1} = -4 \Rightarrow 2x = -4x - 4$

$\Rightarrow 6x = -4$

$\Rightarrow x = -\frac{4}{6} = \boxed{-\frac{2}{3}}$

Cevap: A

14. $x, y \in Z$

$x\sqrt{5} + y\sqrt{5} = 3x - 2y + 20 \Rightarrow x = ?$

$x\sqrt{5} + y\sqrt{5} = 0$

$3x - 2y + 20 = 0$ $\Rightarrow$ için verilen eşitlik sağlanır.

$\Rightarrow$ $2/\ \sqrt{5}x + \sqrt{5}y = 0$

$\sqrt{5}/\ 3x - 2y = -20$ $\Rightarrow$

$2\sqrt{5}x + 2\sqrt{5}y = 0$

$+\ 3\sqrt{5}x - 2\sqrt{5}y = -20\sqrt{5}$

$5\sqrt{5}x = -20\sqrt{5}$

$\boxed{x = -4}$

Cevap: D

15. $x + y - z = 0$

$3x - y + z = 4$

$2x + 2y - z = 9$ $\Rightarrow$

$x + y - z = 0$

$+\ 3x - y + z = 4$

$4x = 4 \Rightarrow \boxed{x = 1}$

$3x - y + z = 4 \Rightarrow 3 - y + z = 4 \Rightarrow -y + z = 1$

$2x + 2y - z = 9 \Rightarrow 2 + 2y - z = 9 \Rightarrow +\ 2y - z = 7$

$\boxed{y = 8}$

Cevap: B

16. $x - y + 2z = 2$

$x - y + z = 2$

$x + y - z = 0$ $\Rightarrow$

$x - y + z = 2$

$+\ x + y - z = 0$

$2x = 2 \Rightarrow \boxed{x = 1}$

$x - y + 2z = 2 \Rightarrow 1 - y + 2z = 2 \Rightarrow -y + 2z = 1$

$x - y + z = 2 \Rightarrow 1 - y + z = 2 \Rightarrow -2/\ -y + z = 1$

$-y + 2z = 1$

$+\ 2y - 2z = -2$

$\boxed{y = -1}$

Cevap: E

17. $\frac{x}{z+5}=\frac{y}{x+1}=\frac{z}{y-2}=\frac{3}{5} \Rightarrow x+y+z=?$

$\frac{x}{z+5}=\frac{3}{5} \Rightarrow 5x=3z+15 \Rightarrow 5x-3z=15$

$\frac{y}{x+1}=\frac{3}{5} \Rightarrow 5y=3x+3 \Rightarrow 5y-3x=3$

$\frac{z}{y-2}=\frac{3}{5} \Rightarrow 5z=3y-6 \Rightarrow +\ 5z-3y=-6$

$2x+2y+2z=12$

$2.(x+y+z)=12$

$\boxed{x+y+z=6}$

Cevap: A

18. $3-\frac{5}{3-x}=x+\frac{1}{x-3} \Rightarrow 3+\frac{5}{x-3}=x+\frac{1}{x-3}$

$\Rightarrow \frac{5}{x-3}-\frac{1}{x-3}=x-3$

$\Rightarrow \frac{4}{x-3}=x-3$

$\Rightarrow (x-3)^2=4$

$\Rightarrow x-3=2 \rightarrow \boxed{x=5} \rightarrow$ D şıkkı

$x-3=-2 \rightarrow \boxed{x=1} \rightarrow$ Şıklarda yok

Cevap: D

19. $x+y+z=4 \Rightarrow y+z=4-x$

$xy+xz=4 \Rightarrow x.(y+z)=4$

$\Rightarrow x.(4-x)=4$

$\Rightarrow 4x-x^2=4$

$\Rightarrow x^2-4x+4=0$

$\Rightarrow (x-2)^2=0$

$\Rightarrow x-2=0 \Rightarrow \boxed{x=2}$

Cevap: D

20. $\left.\begin{array}{l} x-y+z=2 \\ 3x-y+2z=10 \\ 2x-6y+z=5 \end{array}\right\} x+y+z=?$

$\left.\begin{array}{r} x-y+z=2 \\ +\ 2x-6y+z=5 \\ \hline 3x-7y+2z=7 \end{array}\right\} \Rightarrow \begin{array}{r} 3x-y+2z=10 \\ -1/\ \ 3x-7y+2z=7 \\ \hline 3x-y+2z=10 \\ +\ -3x+7y-2z=-7 \\ \hline 6y=3 \end{array}$

$\boxed{y=\frac{1}{2}}$

$x-y+z=2 \Rightarrow x+z=2+\frac{1}{2}=\boxed{\frac{5}{2}}$

$\Rightarrow x+y+z=\frac{5}{2}+\frac{1}{2}=\frac{6}{2}=\boxed{3}$

Cevap: C