1. $\dfrac{3m}{n+\frac{2}{m}} - \dfrac{5n}{m+\frac{2}{n}} = \dfrac{4n^2}{m.n+2}$

$\dfrac{3m}{\frac{mn+2}{m}} - \dfrac{5n}{\frac{mn+2}{n}} = \dfrac{4n^2}{m.n+2}$

$\dfrac{3m^2-5n^2}{\cancel{m.n+2}} = \dfrac{4n^2}{\cancel{m.n+2}}$

$3m^2 - 5n^2 = 4n^2$

$3m^2 = 9n^2$

$m^2 = 3n^2$

$m = \sqrt{3}\,n$

$\Rightarrow \dfrac{m}{n} = \dfrac{\sqrt{3}\,n}{n} = \sqrt{3}$ olur.

Cevap: B

2. • $\dfrac{p}{q} = \dfrac{q}{r} \Rightarrow q^2 = p.r$

• $\dfrac{q^2+r}{p+1} = 2r-7 \qquad (q^2 = p.r)$

$\dfrac{p.r+r}{p+1} = 2r-7$

$\dfrac{r(\cancel{p+1})}{\cancel{p+1}} = 2r-7$

$r = 2r-7 \Rightarrow r = 7$ olur.

Cevap: D

3. $\dfrac{m+2}{m} + \dfrac{n-2}{n} = 5$

$+ \quad \dfrac{m-2}{m} - \dfrac{n+3}{n} = -13$

$\dfrac{m+\cancel{2}+m-\cancel{2}}{m} + \dfrac{n-2-n-3}{n} = -8$

$\dfrac{2\cancel{m}}{\cancel{m}} + \dfrac{-5}{n} = -8$

$2 - \dfrac{5}{n} = -8 \Rightarrow \dfrac{5}{n} = 10$ ve $n = \dfrac{1}{2}$ olur.

Cevap: C

4. • $(x+z).(y+m) = xy + xm + yz + zm$

$= 10 + 5 + 12 + zm$

$= 27 + z.m$

• $xm = 5$

$x \quad y.z = 12$

$xyzm = 60 \Rightarrow 10zm = 60$

$\underbrace{10}$ $\qquad zm = 6$

$\Rightarrow 27 + zm = 27 + 6 = 33$ olur.

Cevap: D

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

$x + z = -y$

$y + z = -x$

$\Rightarrow (x+z)^3.(y+z)^3.(x+y)^3$

$= -y^3.-x^3.-z^3$

$= -x^3y^3z^3$

$= -(x.y.z)^3$

$= -(-30)^3$

$= 30^3$

Cevap: E

6. • $x^2.z = \dfrac{2}{5}$

• $x \quad y^2.z^2 = \dfrac{1}{16}$

$x^2y^2z^3 = \dfrac{\cancel{2}}{5}.\dfrac{1}{\underset{8}{\cancel{16}}}$

$(x.y)^2.z^3 = \dfrac{1}{40} \qquad (x.y) = 5$

$5^2.z^3 = \dfrac{1}{40}$

$z^3 = \dfrac{1}{1000} \Rightarrow z = \dfrac{1}{10}$ olur.

Cevap: A

7. $\left(a+\frac{3}{bc}\right)\left(b+\frac{2}{ac}\right)\left(c+\frac{6}{ab}\right)$

$= \frac{abc+3}{bc}.\frac{abc+2}{ac}.\frac{abc+6}{ab}$ $(a.b.c = 6)$

$= \frac{(6+3).(6+2).(6+6)}{(a.b.c)^2}$

$= \frac{9.8.12}{6^2}$

$= \frac{9.8.\cancel{12}}{\cancel{36}_{3}} = \frac{72}{3} = 24$ olur.

Cevap: A

8. $(x+5)^3.(y+5)^3 = \left((x+5)(y+5)\right)^3$

$= (xy + 5x + 5y + 25)^3$

$= (xy + 5(x+y) + 25)^3$

$= (-5 + 5(-3) + 25)^3$

$= (-5 - 15 + 25)^3$

$= 5^3$

$= 125$

Cevap: A

9.
- $y/x = \frac{1}{ya} \Rightarrow xy = \frac{1}{a} \Rightarrow \frac{1}{xy} = a$
- $z/y = \frac{1}{zb} \Rightarrow yz = \frac{1}{b} \Rightarrow \frac{1}{yz} = b$
- $x/z = \frac{1}{xc} \Rightarrow xz = \frac{1}{c} \Rightarrow + \frac{1}{xz} = c$

$\frac{1}{xy}+\frac{1}{yz}+\frac{1}{xz}$

$= a + b + c$

$\Rightarrow \frac{x+y+z}{x.yz} = \frac{x}{xyz}+\frac{y}{xyz}+\frac{z}{xyz}$

$= \frac{1}{yz}+\frac{1}{xz}+\frac{1}{xy} = \underbrace{a+b}_{\downarrow -c}+c = -c+c = 0$

Cevap: C

10.
- $\frac{-a.b}{a+b} = \frac{1}{9} \Rightarrow \frac{-a-b}{a.b} = 9 \Rightarrow \frac{-a}{a.b} - \frac{b}{a.b} = 9 \Rightarrow -/ - \frac{1}{\cancel{b}} - \frac{1}{\cancel{a}} = 9$
- $\frac{-a.c}{a+c} = \frac{1}{7} \Rightarrow \frac{-a-c}{a.c} = 7 \Rightarrow \frac{-a}{a.c} - \frac{c}{a.c} = 7 \Rightarrow -\frac{1}{c} - \frac{1}{\cancel{a}} = 7$
- $\frac{-bc}{b+c} = \frac{1}{4} \Rightarrow \frac{-b-c}{b.c} = 4 \Rightarrow \frac{-b}{b.c} - \frac{c}{b.c} = 4 \Rightarrow -\frac{1}{c} - \frac{1}{\cancel{b}} = 4$

$+$

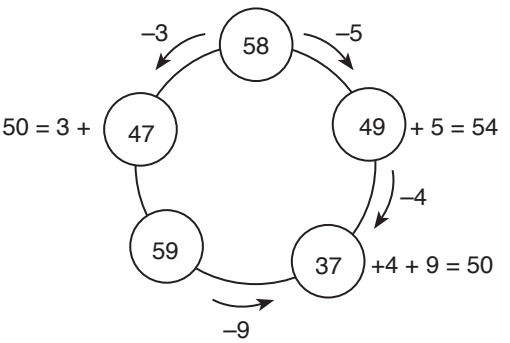
$-\frac{2}{c} = -9 + 7 + 4$

$\frac{-2}{c} = 2$

$c = -1$ olur.

Cevap: D

11.



Toplam bilye sayısı = 58 + 47 + 59 + 37 + 49 = 250

Son durumda her çocukta 250 : 5 = 50 bilye olmalı.

O halde toplam 3 + 5 + 4 + 9 = 21 hamlede çocukların bilyeleri eşitlenir.

Cevap: D

12. $5.x.z = 160 \Rightarrow x.z = 32$

$4yz = 16 \Rightarrow y.z = 4$

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

$\Rightarrow x.z.x.y = 32.2$

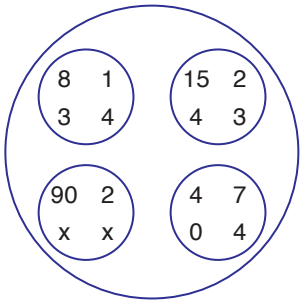
$x^2.z.y = 64$

$x^2.4 = 64$

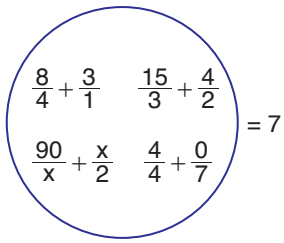
$x^2 = 16 \Rightarrow x = 4$ olur.

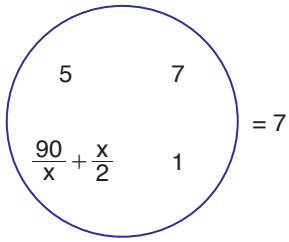
Cevap: A

13.



$\Rightarrow$





$$\frac{5}{1} + \frac{\frac{90}{x} + \frac{x}{2}}{7} = 7$$

$$\frac{90}{x} + \frac{x}{2} = 2.7$$

$$\frac{90}{x}_{(2)} + \frac{x}{2}_{(x)} = 14$$

$$\frac{180 + x^2}{2x} = 14$$

$$x^2 + 180 = 28x$$

$$x^2 - 28x + 180 = 0$$

$$(x - 10)(x - 18) = 0$$

$x_1 = 10$ ve $x_2 = 18$

O halde x'in değerleri toplamı 10 + 18 = 28 olur.

Cevap: C