

תרגול פסיכומטרי חזקות ושורשים 1 - פתרונות



מפתח תשובות נכונות:

1. (2) 2. (3) 3. (4) 4. (4) 5. (3) 6. (2)

1. $a^2 \cdot 125^2 = a^5 \cdot 5^{12}$
 $a = ?$

	(1) $\frac{1}{125}$	(2) $\frac{1}{25}$	(3) 1	(4) 25
נפעיל שורש שלישי:	$a^2 \cdot 125^2 = a^5 \cdot 5^{12}$ $a^2 \cdot (5^3)^2 = a^5 \cdot 5^{12}$ $a^2 \cdot 5^6 = a^5 \cdot 5^{12}$ $\frac{5^6}{5^{12}} = a^3$	$5^{12} : 5^6 = a^3$	$\frac{1}{5^6} = a^3$ $\frac{1}{5^2} = a$ $\frac{1}{25} = a$	

2. $64 \cdot 81 \cdot 4 \cdot 9^2 = ?$

(1) 12^5	(2) 7^5	(3) 6^8	(4) $3^5 \cdot 4$
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$64 \cdot 81 \cdot 4 \cdot 9^2 = 4^3 \cdot 9^2 \cdot 4 \cdot 9^2 = 4^{3+1} \cdot 9^{2+2} = 4^4 \cdot 9^4 = (36)^4 = (6^2)^4 = 6^8$

3. $\frac{(\sqrt[4]{x} \cdot 9)^4}{(\sqrt[6]{x} \cdot 3)^6} = ?$

(1) $2x$	(2) $9x$	(3) $\frac{1}{3}$	(4) 9
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$\frac{(\sqrt[4]{x} \cdot 9)^4}{(\sqrt[6]{x} \cdot 3)^6} = \frac{(\sqrt[4]{x})^4 \cdot 9^4}{(\sqrt[6]{x})^6 \cdot 3^6} = \frac{x \cdot (3^2)^4}{x \cdot 3^6} = \frac{x \cdot 3^{2 \cdot 4}}{x \cdot 3^6} = \frac{3^8}{3^6} = 3^{8-6} = 3^2 = 9$

$$\sqrt[4]{\frac{16}{20}} \cdot \sqrt[4]{\frac{32}{36}} \cdot \sqrt[4]{\frac{14}{24}} \cdot \sqrt[4]{\frac{15}{7}} = ? \quad .4$$

$$\sqrt[4]{\frac{8}{9}} \quad (4)$$

$$\frac{1}{3} \quad (3)$$

$$\sqrt[4]{\frac{4}{9}} \quad (2)$$

$$\frac{2}{3} \quad (1)$$

$$\sqrt[4]{\frac{16}{20}} \cdot \sqrt[4]{\frac{32}{36}} \cdot \sqrt[4]{\frac{14}{24}} \cdot \sqrt[4]{\frac{15}{7}} = \sqrt[4]{\frac{16}{20} \cdot \frac{32}{36} \cdot \frac{14}{24} \cdot \frac{15}{7}} = \sqrt[4]{\frac{4}{5} \cdot \frac{16}{18} \cdot \frac{7}{12} \cdot \frac{15}{7}} = \sqrt[4]{\frac{1}{1} \cdot \frac{16}{18} \cdot \frac{1}{3} \cdot \frac{3}{1}} = \sqrt[4]{\frac{1}{1} \cdot \frac{8}{9} \cdot \frac{1}{1} \cdot \frac{1}{1}} = \sqrt[4]{\frac{8}{9}}$$

$$\frac{\frac{x^8}{y^4}}{\frac{y^2}{x^4}} = z^6 \quad .5$$

$$x = ?$$

$$y \cdot z^2 \quad (4)$$

$$\sqrt{zy} \quad (3)$$

$$y\sqrt{z} \quad (2)$$

$$z\sqrt{y} \quad (1)$$

$$x^{12} = z^6 \cdot y^6$$

נפעיל שורש מסדר 12 :

$$x^{12} = (z \cdot y)^6$$

$$x = (zy)^{\frac{6}{12}} = (zy)^{\frac{1}{2}} = \sqrt{zy}$$

$$\frac{x^8 \cdot x^4}{y^4 \cdot y^2} = z^6$$

$$\frac{x^{8+4}}{y^{4+2}} = z^6$$

נכפול ב- y^6 :

$$\frac{x^{12}}{y^6} = z^6$$

$$\sqrt[3]{\sqrt[2]{\sqrt[4]{(x^{-3} \cdot y^{-6})^{-8}}}} = ? \quad .6$$

$$x \cdot y \quad (4)$$

$$\frac{x}{y^2} \quad (3)$$

$$x \cdot y^2 \quad (2)$$

$$\frac{x^2}{y} \quad (1)$$

$$\sqrt[3]{\sqrt[2]{\sqrt[4]{(x^{-3} \cdot y^{-6})^{-8}}}} = 3 \cdot (-2) \cdot (-4) \sqrt{(x^{-3})^{-8} \cdot (y^{-6})^{-8}} = 24 \sqrt{x^{24} \cdot y^{48}} = x^{\frac{24}{24}} \cdot y^{\frac{48}{24}} = x \cdot y^2$$