

SCHOOL BASED ASSESSMENT 2024-25

Mid-Term

Mathematics Grade 8

School Name: _____

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ANSWER KEYS

Q. No.1 : a	Q. No.2 : c	Q. No.3 : b
Q. No.4 : a	Q. No.5 : b	Q. No.6 : c
Q. No.7 : a	Q. No.8 : d	Q. No.9 : b
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ANSWERS / RUBRICS

Question No: 11

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سوال نمبر 11

a) If the general term of the geometric sequence is $a_n = 4 \times 3^{n-1}$, then find its first 4 terms. (5 marks)

اگر ضربی سلسلے کی جنرل رقم $a_n = 4 \times 3^{n-1}$ ہو تو اس کی پہلی چار رتیں معلوم کریں۔ (5 نمبر)

BY putting $n = 1, 2, 3, 4$

$$a_1 = 4 \cdot 3^0 = 4 \quad (1 \text{ mark})$$

$$a_2 = 4 \cdot 3^1 = 12 \quad (1 \text{ mark})$$

$$a_3 = 4 \cdot 3^2 = 36 \quad (1 \text{ mark})$$

$$a_4 = 4 \cdot 3^3 = 108 \quad (2 \text{ mark})$$

درج کرنے سے $n = 1, 2, 3, 4$

$$a_1 = 4 \cdot 3^0 = 4 \quad (1 \text{ نمبر})$$

$$a_2 = 4 \cdot 3^1 = 12 \quad (1 \text{ نمبر})$$

$$a_3 = 4 \cdot 3^2 = 36 \quad (1 \text{ نمبر})$$

$$a_4 = 4 \cdot 3^3 = 108 \quad (2 \text{ نمبر})$$

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Simplify and write answer in exponential form. $\frac{(3^2)^5 \times 5^4}{9^4 \times 5^{-2}}$. (5 marks)

مختصر کریں اور جواب قوت نمائی شکل میں لکھیں۔ $\frac{(3^2)^5 \times 5^4}{9^4 \times 5^{-2}}$ ۔ (5 نمبر)

$$\frac{(3^2)^5 \times 5^4}{9^4 \times 5^{-2}}$$

$$= \frac{(3^2)^5 \times 5^4}{(3^2)^4 \times 5^{-2}} \quad (1 \text{ Mark})$$

$$= \frac{3^{10} \times 5^4}{3^8 \times 5^{-2}} \quad (1 \text{ Mark})$$

$$= \frac{3^{10} \times 5^4 \times 5^2}{3^8} \quad (1 \text{ Mark})$$

$$= 3^{10-8} \times 5^{4+2} \quad (1 \text{ Mark})$$

$$= 3^2 \times 5^6 \quad (1 \text{ Mark})$$

$$\frac{(3^2)^5 \times 5^4}{9^4 \times 5^{-2}}$$

$$= \frac{(3^2)^5 \times 5^4}{(3^2)^4 \times 5^{-2}} \quad (1 \text{ نمبر})$$

$$= \frac{3^{10} \times 5^4}{3^8 \times 5^{-2}} \quad (1 \text{ نمبر})$$

$$= \frac{3^{10} \times 5^4 \times 5^2}{3^8} \quad (1 \text{ نمبر})$$

$$= 3^{10-8} \times 5^{4+2} \quad (1 \text{ نمبر})$$

$$= 3^2 \times 5^6 \quad (1 \text{ نمبر})$$

Question No: 12

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سوال نمبر 12

a) Find the value of $x^2 + \frac{1}{x^2}$, when $x - \frac{1}{x} = 7$. (5 marks)

$x^2 + \frac{1}{x^2}$ کی قیمت معلوم کریں جبکہ $x - \frac{1}{x} = 7$ ۔ (5 نمبر)

Here, $x - \frac{1}{x} = 7$

$$\left(x - \frac{1}{x}\right)^2 = (7)^2 \quad (1 \text{ Mark})$$

$$x^2 + \frac{1}{x^2} - 2\left(x\right)\left(\frac{1}{x}\right) = 49 \quad (1 \text{ Mark})$$

$$x^2 + \frac{1}{x^2} - 2 = 49 \quad (1 \text{ Mark})$$

$$x^2 + \frac{1}{x^2} = 49 + 2 \quad (1 \text{ Mark})$$

$$x^2 + \frac{1}{x^2} = 51 \quad (1 \text{ Mark})$$

$$x - \frac{1}{x} = 7$$

$$\left(x - \frac{1}{x}\right)^2 = (7)^2 \quad (1 \text{ نمبر})$$

$$x^2 + \frac{1}{x^2} - 2\left(x\right)\left(\frac{1}{x}\right) = 49 \quad (1 \text{ نمبر})$$

$$x^2 + \frac{1}{x^2} - 2 = 49 \quad (1 \text{ نمبر})$$

$$x^2 + \frac{1}{x^2} = 49 + 2 \quad (1 \text{ نمبر})$$

$$x^2 + \frac{1}{x^2} = 51 \quad (1 \text{ نمبر})$$

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If $x = \frac{2y-5}{4}$, then make y the subject. (5 Marks)

$$x = \frac{2y-5}{4}$$
$$4x = 2y - 5 \quad (1.5 \text{ Marks})$$
$$2y = 4x + 5 \quad (1.5 \text{ Marks})$$
$$y = \frac{4x+5}{2} \quad (2 \text{ Marks})$$

اگر $x = \frac{2y-5}{4}$ ہو تو y کو سبجیکٹ بنائیں۔ (5 نمبر)

$$x = \frac{2y-5}{4}$$
$$4x = 2y - 5 \quad (1.5 \text{ نمبر})$$
$$2y = 4x + 5 \quad (1.5 \text{ نمبر})$$
$$y = \frac{4x+5}{2} \quad (2 \text{ نمبر})$$

Question No: 13

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سوال نمبر 13

a) Find the solution set of the following simultaneous equations by using the method of substitution. (8 Marks)

$$2x + y = 7, \quad 3x - 2y = 8$$

قیمت درج کرنے کے طریقہ سے دی گئی ہمزاد مساواتوں کا حل سیٹ معلوم کریں۔ (8 نمبر)

$$2x + y = 7 \quad (i)$$
$$3x - 2y = 8 \quad (ii)$$

From equation (i)

$$y = 7 - 2x \quad (iii) \quad (1 \text{ Mark})$$

Substituting the value of "y" in equation (ii) from equation (iii)

$$3x - 2(7 - 2x) = 8 \quad (1 \text{ Mark})$$

$$3x - 14 + 4x = 8$$

$$7x - 14 = 8$$

$$7x = 8 + 14 \quad (1 \text{ Mark})$$

$$7x = 22$$

$$x = \frac{22}{7} \quad (2 \text{ Marks})$$

Substituting the value of "x" in equation (iii)

$$y = 7 - 2\left(\frac{22}{7}\right)$$

$$y = 7 - \frac{44}{7}$$

$$y = \frac{49-44}{7} \quad (1 \text{ Mark})$$

$$y = \frac{5}{7} \quad (1 \text{ Mark})$$

Hence solution set is $\left\{\left(\frac{22}{7}, \frac{5}{7}\right)\right\}$ (1 Mark)

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$$2x + y = 7, \quad 3x - 2y = 8$$

$$(i) \quad 2x + y = 7$$

$$(ii) \quad 3x - 2y = 8$$

مساوات (i) کے مطابق

$$(iii) \quad y = 7 - 2x \quad (1 \text{ نمبر})$$

مساوات (iii) سے y کی قیمت مساوات (ii) میں درج کرنے سے

$$3x - 2(7 - 2x) = 8 \quad (1 \text{ نمبر})$$

$$3x - 14 + 4x = 8$$

$$7x - 14 = 8$$

$$7x = 8 + 14 \quad (1 \text{ نمبر})$$

$$7x = 22$$

$$x = \frac{22}{7} \quad (2 \text{ نمبر})$$

x کی قیمت مساوات (iii) میں درج کرنے سے

$$y = 7 - 2\left(\frac{22}{7}\right)$$

$$y = 7 - \frac{44}{7}$$

$$y = \frac{49-44}{7} \quad (1 \text{ نمبر})$$

$$y = \frac{5}{7} \quad (1 \text{ نمبر})$$

(1 نمبر) پس $\left\{\left(\frac{22}{7}, \frac{5}{7}\right)\right\}$ حل سیٹ ہے

Find the value of m in the equation $11m - 17n = 15$ when $n = 3$. (7 marks)

مساوات $11m - 17n = 15$ میں m کی قیمت معلوم کریں جبکہ $n = 3$ ۔ (7 نمبر)

$$11m - 17n = 15$$

$$11m - 17(3) = 15 \quad (1 \text{ mark})$$

$$11m - 51 = 15 \quad (1 \text{ mark})$$

$$11m = 15 + 51 \quad (1 \text{ mark})$$

$$11m = 66 \quad (1 \text{ mark})$$

$$m = \frac{66}{11} \quad (1 \text{ mark})$$

$$m = 6 \quad (2 \text{ marks})$$

$$11m - 17n = 15$$

$$11m - 17(3) = 15 \quad (1 \text{ نمبر})$$

$$11m - 51 = 15 \quad (1 \text{ نمبر})$$

$$11m = 15 + 51 \quad (1 \text{ نمبر})$$

$$11m = 66 \quad (1 \text{ نمبر})$$

$$m = \frac{66}{11} \quad (1 \text{ نمبر})$$

$$m = 6 \quad (2 \text{ نمبر})$$

Ahsan

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