

PRIMARY MATHS SERIES

REVISION GUIDE FOR STANDARDS 7 AND 8

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ALGEBRA

7.1 Specific Objectives

By the end of the unit, the learner should be able to:

- a) Form and simplify algebraic expressions,
- b) Work out the value of algebraic in one unknown and
- c) Simplify inequalities in one unknown.

7.2 Worked Exercise

1. What is the value of x in the equation?

$$2(3x - 2) = 3x + 8$$

- A. 12 B. $3\frac{1}{3}$ C. 5 D. 4

Working

$$2(3x - 2) = 3x + 8$$

Step 1: Open brackets

$$6x - 4 = 3x + 8$$

Step 2: Collect like terms and simplify

$$6x - 3x = 8 + 4$$

$$3x = 12$$

$$x = 4$$

The correct answer is D (4)

2. Francis has r shillings. John has s shillings. Ouma has sh.150 less than the total money of both Francis and John. Which one of the following expressions gives the total amount of money do the three men have?

- A. $2r + 2s - 150$ B. $r + s - 150$ C. $2r + 2s + 300$ D. $r + s + 300$

Working

$$\text{Francis} = r$$

$$\text{John} = s$$

$$\text{Ouma} = r + s - 150$$

$$\text{Total money} = r + s + r + s - 150$$

$$= 2r + 2s - 150$$

The correct answer is A ($2r + 2s - 150$)

3. If $x = 2$, $y = z - x$ and $z = 3$, What is the value of

$$\frac{3x - 4y + 2z}{2(x + 2y - z)}$$

A. 8

B. 5

C. 7

D. 4

Working

Substitute the values of x , y , and z

$$= \frac{(3 \times 2) - (4 \times 1) + (2 \times 3)}{2(2 + 2 \times 1 - 3)}$$

$$= \frac{8}{2}$$

$$= 4$$

The correct answer is D (4)

4. In a meeting there were 30 women than men and three times as many men as children. If there were 1,360 people altogether. What was the number of children in the meeting?

A. 220

B. 190

C. 600

D. 570

Working

$$\text{Men} = 3x$$

$$\text{Children} = x$$

$$\text{Women} = 3x + 30$$

$$\text{Total } 7x + 30 = 1360$$

$$7x = 1360 - 30$$

$$7x = 1330$$

$$x = 190$$

Children are 190

The correct answer is B (190)

5. What is the value of p in the equation?

$$\frac{3}{4}(8p - 4) = 4p + 7$$

A. 2

B. 5

C. $5\frac{1}{2}$

D. $2\frac{3}{8}$

Working

$$\frac{3}{4}(8p - 4) = 4p + 7$$

$$6p - 3 = 4p + 7 \quad (\text{opening brackets})$$

$$6p - 4p = 7 + 3 \quad (\text{collecting like terms})$$

$$2p = 10$$

$$p = 5 \quad (\text{Simplifying})$$

The correct answer is B (5)

6. Omammo is two years older than Temo and three years younger than Mbeti. The sum of their ages is 64 years. If Omamo's age is M, which of the following equations below can be used to find Omamo's age?

Working

$$\text{Omamo} = x$$

$$\text{Temo} = x - 2$$

$$\text{Mbeti} = x + 3$$

$$\text{Total age} = 64$$

$$X + x - 2 + x + 3 = 64$$

$$x + x + x - 2 + 3 = 64$$

$$3x + 1 = 64$$

The correct answer is A ($3m + 1 = 64$)

7. What is the simplified form of $5x + \frac{1}{4}(8x - 2y)$

- A. $37x - 8y$ B. $7x - \frac{1}{2}y$ C. $28x - 2y$ D. $7x - 2y$

Working

$$5x + \frac{1}{4}(8x - 2y) \quad \text{open brackets}$$

$$5x + 2x - \frac{1}{2}y \quad \text{simplify}$$

$$= 7x - \frac{1}{2}y$$

The correct answer is B ($7x - \frac{1}{2}y$)

7. 3 Practice Test Paper 7

1. What is the value of $2b(a + c) + ac$ when $a = b = 3$ and $c = 2$?

- A. 21 B. 30 C. 36 D. 66

2. What is the value of y in $3(y + 4) - 10 = 32$?

- A. $16 \frac{2}{3}$ B. $12 \frac{2}{3}$ C. $11 \frac{1}{3}$ D. 10

3. Mary Magdalene scored a total of 180 marks in social studies, science and Kiswahili. His score in social science was half that obtained in science. The score in science was 10 more than the score in Kiswahili. If the score obtained in Kiswahili is represented by d , which one of the following equations can be used to get the value of d ?

- A. $2 \frac{1}{2}d + 15 = 180$ B. $2 \frac{1}{2}d - 15 = 180$
C. $4d + 30 = 180$ D. $d + 15 = 180$

4. At a function the number of men was half that of women. The number of children was three times that of women. The number of women who attended $3w$. What was the number of men and children?

- A. $10 \frac{1}{2}w$ B. $2 \frac{1}{2}w$ C. $13 \frac{1}{2}w$ D. $21w$

5. Which of the following expressions is the simplest form of $\frac{6(p+2q)+3p}{2(p+2q)-2q}$

- A. $\frac{9p+12q}{2p+2q}$ B. $\frac{6p+6q}{p}$ C. $\frac{3}{1-2q} + \frac{3p}{1-2q}$ D. $\frac{9p}{2p} + \frac{3p}{2p}$

6. What is the value of t in the equation $2\frac{(t+1)}{3} - 4 = 6$

- A. 4 B. 8 C. 10 D. 14

7. What is the simplified form of $\frac{1}{2}(3k+4L) + \frac{1}{5}(2k+7L) - 1\frac{1}{4}k - \frac{1}{2}L$

- A. $4\frac{1}{4}k + 2\frac{9}{10}L$ B. $3\frac{3}{20}k + 3\frac{9}{10}L$ C. $\frac{13}{20}k + 2\frac{9}{10}L$ D. $\frac{13}{20}k + 2\frac{9}{10}L$

8. What is the value of $p\frac{(2r+q)}{q} - r$ where $p = 3$, $q - p = 4$ and $r = \frac{p+q}{2}$?

- A. $8\frac{5}{7}$ B. $\frac{2}{7}$ C. $6\frac{4}{7}$ D. $2\frac{2}{7}$

9. Tony is two years older than phoebe now. If phoebe's age is represented by y, what will be their total ages after then years?

- A. $2y + 18$ B. $y + 22$ C. $3y + 20$ D. $2y + 22$

10. What is the value of q in the equation?

$$\frac{1}{2}(q+1) + \frac{1}{3}(2q-1) = 5.$$

- A. $\frac{4}{7}$ B. $4\frac{2}{7}$ C. $4\frac{1}{7}$ D. $4\frac{3}{7}$

11. A party was attended by men, women, boys and girls. The number of girls was three times that of men and 120 more than that of women. The number of boys was 30 more than that of girls. Which was the total number of people at the party?

- A. 719 B. 2150 C. 1850 D. 1910.

12. Three schools A, B and C received a total donation of 165 books. School B got 8 books more than school, while school C got half of what schools A and B got. If the number of books given to school A is represented by letter b, which equation below can be used to get the value of b?

- A. $3b - 12 = 165$ B. $6b + 24 = 165$ C. $1\frac{1}{2}b + 12 = 165$ D. $3b + 12 = 165$

13. Which one of the following statements is **true**?

- A. $\frac{3}{4} < 0.75$ B. $\frac{1}{9} < 0.1$ C. $\frac{4}{3} < 1.3$ D. $\frac{2}{5} < 0.5$

14. What is the value of $\frac{2w(x-2)^2}{y+1}$

when $x = 5$, $y = x + 3$ and $w = 2x + y$

- A. 144 B. 36 C. 12 D. 24

15. What is the value of x in the equation?

$$\frac{x}{4} + \frac{2}{3}(x+5) = 6$$

- A. $2\frac{10}{11}$ B. $10\frac{2}{11}$ C. $1\frac{1}{11}$ D. $2\frac{4}{9}$

16. Which one of the following expressions is correct?

- A. $\frac{7}{8} > \frac{3}{4}$ B. $72.5 - 2.57 < 49.9 + 20.03$
 C. $506 + 45 > 330 + 222$ D. $0.065 < 0.065$

17. Mugo shared money among his three children George, Ann and Nduta. Ann received sh10 more than Nduta, while George got twice the amount Anne got. If Nduta received sh9, which of the following expressions represents the total amount of money given to the three children?

- A. $4q + 10$ B. $4q + 30$ C. $2q + 20$ D. $3q + 30$

18. Pupils in standard 5, 6, 7 and 8 contributed money towards a building project. Standard 7 raised sh y while standard 5 raised a third of what standard 7 raised. Standard 6 raised sh 100 less than the total amount raised by both standard 5 and 7. Standard 8 raised sh 200 more than standard 7. If the total amount of money raised was sh 6900, which of the expressions below can be used to find the amount raised by each class?

- A. $y + \frac{2}{3}y + 100 = 6900$ B. $3y + \frac{2}{3}y - 300 = 6900$
 C. $3y + \frac{2}{3}y + 300 = 6900$ D. $3y + \frac{2}{3}y + 100 = 6900$

19. What is the value of $\frac{2q-r}{y} + n$

Where $n = 5$, $y = 2n$, $q = n + q$ and $r = q - 6$?

- A. 2.5 B. 7 C. 6.2 D. 11

20. What is the value of x in the equation

$$\frac{2}{3}(6y - 2) = 2y + 4$$

- A. 3 B. $\frac{8}{9}$ C. $1\frac{1}{3}$ D. $2\frac{2}{3}$

21. On a farm there are cows, goats and sheep. The number of goats is twice the number of cows while the number of sheep is 25 less than the number of goats. If the number of goats is represented by m , how many animals are there in the farm?

- A. $2.5m - 25$ B. $2.5m + 25$ C. $4m - 25$ D. $m - 25$

22. What is the value of t in the equation?

$$\frac{2t - 3}{3} + 2t = 6$$

- A. $1\frac{1}{8}$ B. $5\frac{7}{8}$ C. $1\frac{7}{8}$ D. $2\frac{5}{8}$

22. There are x men in a bus. The number of children on the bus was three times that of men but eleven more than that of women. The total of women, men and children in the bus were 45. Which expression below can be used to find the number of men in the bus?

- A. $5x - 11 = 45$ B. $4x + 11 = 45$ C. $7x + 11 = 45$ D. $7x - 11 = 45$

24. What is the value of x in the equation?

$$1\frac{1}{4}x + 4 = 13 - x$$

- A. 68 B. $7\frac{5}{9}$ C. 36 D. 4

15. What is the value of

$$\frac{r(P^2 + qp)}{r + q}$$

When $r = 6$, $p = r + 2$ and $q = p - 3$?

- A. $30\frac{6}{11}$ B. $20\frac{4}{5}$ C. $38\frac{6}{11}$ D. $56\frac{8}{11}$

26. Kimeu, Wakesi and Ofula are news paper vendors. One day Ofula sold 20 newspapers more than Wakesi who sold 10 more news paper than Kimeu. The total number of newspaper sold that day was 140. If wekesi sold n newspapers, which one of the following expressions can be used to find the number of newspapers sold by Wakesi?

- A. $3n + 10 = 140$ B. $3n + 10 = 140$ C. $3n + 20 + 140$ D. $n + 30 = 140$

27. Solve the following equation

$$3(2c + 1) + 5(c + 4) = 61$$

- A. $81\frac{1}{11}$ B. $7\frac{7}{11}$ C. $5\frac{1}{11}$ D. $3\frac{5}{11}$

28. Odero has x pencils. Awuor has 3 more pencils than Odero. Mokaya has two pencils than Odero. Mokaya has two pencils less than the total number that Odero and Awour have. How many pencils do they have altogether?

- A. $8x - 2$ B. $2x + 4$ C. $4x + 4$ D. $2x + 1$

29. Salome bought 45 fruits. The number of pawpaw was 8 more than the number of oranges. The number of mangoes was twice the number of oranges and paw paws. If the number of oranges was m, which of the following equations below can be used to find the number of oranges bought?

- A. $3m + 24 = 45$ B. $6m + 16 + 46$ C. $.6m + 24 + 48$ D. $4m + 16 + 48$

30. What is the value of x in the equation?

$$\frac{3}{5}(x - 5) + \frac{2}{5}(3x + 5) = 10$$

A. $6\frac{1}{9}$

B. $5\frac{5}{9}$

C. 5

D. $1\frac{2}{3}$

31. Three men Raha, Gitaa and Kamau contributed Sh 400 for a function. Raha contributed Sh 30 more than Gitaa while Kamau contributed three times as much as Raha. If Kamau contributed Sh w , which one of the equations below can be used to find Kamau's contribution?

A. $5w - 90 = 1200$

B. $5w - 90 = 400$

C. $5w + 90 = 1200$

D. $7w - 30 = 400$

32. The length of a rectangle $(2x + 8)$ cm and its width is $(x - 6)$ cm. If the perimeter is 58 cm, What is the actual length of the rectangle?

A. 3 cm

B. 9 cm

C. 26 cm

D. $45\frac{1}{3}$ cm

33. Vandí, Salim and Tong'i are employed in a company. Vandí is paid Sh 50 more than Tong'i. Salim's salary is Sh 90 more than half the total amount earned by both Vandí and Tongoi. If Vandí's salary is x , which of the following expressions below represents the total money of the three employers?

A. sh $(3x + 165)$

B. sh $(4x - 10)$

C. sh $(3x - 30)$

D. sh $(3x + 15)$

34. What is the size of angle XZY in the triangle below?



A. 28°

B. 44°

C. 32

D. 40°

35. What is the solution of the equation?

$$\frac{5}{9}(x - 32) = 45$$

A. 57

B. 113

C. 57

D. 81

7.4 Practice Test Paper 7 Answers

1		7		14		20		26		32	
2		8		15		21		27		33	
3		9		16		22		28		34	
4		10		17		23		29		35	
5		12		18		24		30			
6		13		19		25		31			