SOUTHERN PROVINCIAL DEPARTMENT OF EDUCATION

MID YEAR TEST - 2019

GRADE 8

MATHEMATICS

Name/ Index No :-- ..... **Time : 2 Hours**

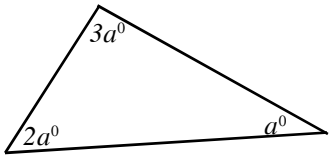
Part I

- **Answer all the questions.**

(1) $12 : \square = 36 : 15$ Fill in the blank.

(2) If $28 \times 43 = 1204$ Write down the value of 0.028×43.

(3) Simplify $\frac{4}{9} \times 2\frac{1}{4}$.

(4) 

Find the value of a^0.

(5) Solve $\frac{n}{4} - 1 = 3$.

(6) Write $6\frac{33}{40}$ as a decimal.

(7) Find the value of 62.32×3.48 .

(8) Oder of rotational symmetry of a regular octagon is ..... (Fill in the blank.)

(9) Find the value $2^2 \times 5^2 \times 3^2$.

(10) Find the value of $\sqrt{900}$.

(11) How many 2.4 m length pieces can be cut using a 72 m pipe.

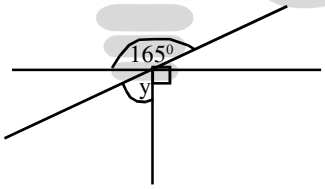
(12) The ratio among the heights of Saman, Suresh and Caseem is $5 : 4 : 6$ respectively. If the height of Suresh is 96 cm, find the height of Caseem.

(13) Fill in the blanks.

12480 kg = ... t

(14) $6a^2 - 15ab + 18abc$, Find the factors.

(15)



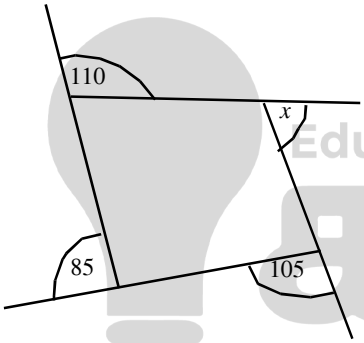
Find the value of y^0.

(16) Find the H. C. F of $4x^2y$, $12xy$, $8xy^2$.

(17) Number of edges and faces of a solid are 10 and 6 respectively. Find the number of vertices.

(18) Find the value $\frac{(-36)}{(-6)\times(-2)}$.

(19)



Find the value of x^0.

(20) General term of a number pattern is 2n - 1. Find 125^{th} tern of that number pattern,

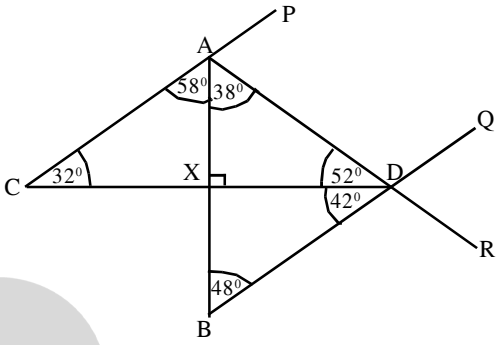
Part II

Write down the answers for only five questions

(1) General term of a number pattern which is written in ascending order is $\frac{n(n+1)}{2}$.

(i) Write the first term of this number pattern.
(ii) Write the 9th and 10th terms of this number pattern.
(iii) If $19 \times 20 = 380$ then find which term is 190 of this number pattern.
(iv) If $20 \times 21 = 420$ then find which term is 210 of this number pattern.
(v) Show that the sum of the 19th and 20th terms of this number pattern is equal to the 20th term of square number pattern which is written in ascending order starting from 1.

(2)

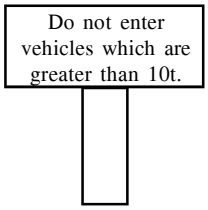


AB and CD straight lines are intersect at the point X perpendicularly (with 90^0) CP, AR, and BQ are straight lines.

(i) Write down 2 pairs of complementary angles.
(ii) Write down 2 pairs of supplementary angles.
(iii) Write down 2 pairs of vertically opposite angles.
(iv) Find the value of $Q\hat{D}R$.
(v) Find the value of $B\hat{D}R$.
(vi) What can you say about to angles $A\hat{D}Q$ and $B\hat{D}R$. Give reasons.

(3) (i) Write down $25n^2$ as a product of powers.
(ii) Write down $(10xy)^2$ as a power of a product and simplify.
(iii) Simplify $(5a)^3 \times (2a)^3$.
(iv) Show that 8×27 is equal to 6^3 .
(v) Show that the value of $(-2)^6$ and 4^3 are equal to each other.
(vi) Without taking the answer of $(-5)^5 \times (-37)^4$ by giving reasons state the answer is positive or negative.

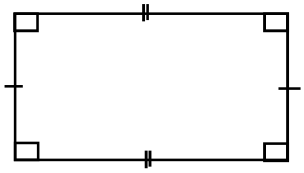
(4) (a)



This poster is infront of a damaged bridge. Mass of a container is 7.2t. There are 80 cement bags each 50 kg in that container. That container is waiting to cross the bridge.

(i) Show that this container can't cross the bridge with suitable calculations.
(ii) Find the minimum number of cement bags which must remove from this container to cross the bridge.

(b)



Perimeter of a rectangle is $16x + 10$ units. It the breadth of that rectangle is $3x + 2$ units. Write down an algebraic expression for the length of the rectangle.

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(5) (a)

A gold colour thread is pasted around this rectangular wall hanger.

(i) Find the total length of that thread.
(ii) Find the length of thread which is needed to paste around 18 such wall hangers in metres.
(iii) If the price of one meter of thread is Rs. 20.50 find the cost which is needed for 18 wall hangers.

(b) When 5 is added to four times the number *"x"* the answer is 61.
(i) Build up an equation using the given information.
(ii) Solve that equation.

---

(6) Dilini start a business on 1st of January by investing Rs. 50 000. Fathima joined the business on 1st of March by investing Rs. 80 000. Ganeesha joined the business on 1st of June by investing Rs. 100 000.

(i) Find the ratio of money they invested in the simplest form.
(ii) Find the ratio of the time period they invested money in the business.
(iii) Find the ratio which they use to divide the profit they received from the business at the end of a year.
(iv) If the profit they received from the business is Rs. 210 000. Find seperately the profit each received.

---

(7) (a) Fill in the blanks.

(i) $\frac{1}{2} =$ ☐ %
(ii) $0.7 =$ ☐ %
(iii) $2.4 =$ ☐ %
(iv) $25\% =$ ☐
(v) $600\% =$ ☐
(vi) $2 : 3 = 100 :$ ☐

(b) If 30% of a parson's salary is Rs. 7800 find the monthly salary of that person.
(c) In a class there are 40 students. 24 of them are girls. Find the percentage of boys in the class.

Answer

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Grade 8
MATHEMATICS - ANSWER GUIDE

Part I

(1) $\frac{15}{3}$ ---------- 1
5 ---------- 2

(2) 1.204 ---------- 2

(3) $\frac{4}{9}\times\frac{9}{4}$ ---------- 1
1 2

(4) $a+2a+3a = 180^0$ ---------- 2
or
$6a = 180$ ---------- 1
$a = 30$ ---------- 2

(5) $\frac{n}{4}-1+1=3+1$ or
$\frac{n}{4}=4$ ---------- 1
n = 16 ---------- 2

(6) $6.\frac{33}{40}\times\frac{2.5}{2.5}$ or $\frac{25}{25}$ ---------- 1
6.825 ---------- 2

(7) 62.32×3.48
2168736 ---------- 1
216.8736 ---------- 2

(8) $2^2\times 5^2\times 3^2$
$4\times 25\times 9$ ---------- 1
900 ---------- 2

(10) $\sqrt{900}$
$\sqrt{30^2}$ ---------- 1
or
$\sqrt{2^2\times 3^2\times 5^2}$ ---------- 1
$2\times 3\times 5$ ---------- 1 - 2
30

(11) $\frac{720}{24}$ ---------- 1
30 ---------- 2

(12) $\frac{4}{15}\rightarrow 96cm$ ---------- 1
$\frac{1}{15}\rightarrow 24cm$ ---------- 1
24×6 ---------- 1
144cm ---------- 2

(13) 12.48t ---------- 2

(14) $6a^2 - 15ab + 18abc$
$3a(2a - 5b + 6bc)$ ---------- 2

(15) $y + 90 = 165^0$ ---------- 1
$y = 165 - 90$ ---------- 1
$y = 75^0$ ---------- 2

(16) $4x^2y,\ 12xy,\ 8xy^2$
H.C.F. $= 4xy$ ---------- 2

(17) F + V= E + 2 ---------- 1
Vertices + 12 - 6 =6 ---------- 2

(18) $\frac{(-36)}{(-6)\times(-2)}$
3 ---------- 1
(-3) ---------- 2

(19) 110 + 105 + 85 + x = 360 ---------- 1
x = 360 - 300 ---------- 1
x = 60 ---------- 2

(20) 2n - 1
2 × 125 - 1 ---------- 1
249 ---------- 02

Part II

(1) (i) $\frac{1\times(1+1)}{2}$ ---------- 1

1 ---------- 1 - 2

(ii) $\frac{9\times10}{2}$ ---------- 1

= 45 ---------- 2

$\frac{10\times11}{2}$ ---------- 1

= 55 ---------- 2

(iii) $\frac{19\times20}{2}=\frac{380}{2}$ ---------- 1

19^{th} term = 190 ---------- 2

(iv) $\frac{20\times21}{2}=\frac{420}{2}$ ---------- 1

20^{th} term = 210 ---------- 2

(v) 190 + 210 = 400

$400 = 20 \times 20 = 202$ ---------- 1

20^{th} square number is 400. ---------- 2

---------- 12

(2) (i) Any 2 pairs of complementary angles.
(One mark for each) ---------- 2

(ii) Any 2 pairs of supplementary angles.
(One mark for each) ---------- 2

(iii) Any 2 pairs of vertically opposite angles.
---------- 2

(iv) $\hat{QDR} = \hat{ADB}$ (vertically opposite)1

$= 52^0 + 42^0$

$= 94^0$ ---------- 2

(v) $\hat{BDR} = 180 - \hat{QDR}$ ---------- 1

= 180 - 94

= 86 ---------- 2

(Or any other method)---------- 2)

$\hat{ADQ} = \hat{BDR}$ ---------- 1

vertically opposite angle(For reason)-- 2

---------- 12

(3) (i) $25n^2 = (5n)^2$ ---------- 1

(ii) $(10xy)^2 = 100x^2y^2$ ---------- 1

(iii) $(5a)^3 \times (2a)^3$ ---------- 1

$125a^3 \times 8a^3$ ---------- 1

$1000a^6$ ---------- 1 - 3

(iv) $8 \times 27 = 2^3 \times 3^3$ ---------- 1

$= (2 \times 3)^2$

$= 6^3$ ---------- 1 - 2

(v) $(-2)^6 = (-2)^3 \times (-2)^3$ ---------- 1

$= (-2 \times -2)^3$

$= 4^3$ ---------- 1 - 2

(vi) Sign of $(-5)^5$ is negative ---------- 1

$(-37)^4$ is positive ---------- 1

When a negative and a positive values are multiply the answer is negative ---------- 1

---------- 3

---------- 12

(4) (a) (i) 7.2t + 50 × 80kg ---------- 1

7.2t + 4000kg ---------- 1

7.2t + 4t ---------- 1

11.2t

11.2t > 10t ---------- 1

Container can't travel ---------- 1 - 5

(ii) Extra mass 1.2t ---------- 1

1200kg ---------- 1

Cement bags $\frac{1200}{50} = 24$ ------- 1

Must remove 24 cement bags.

---------- 1 - 4

b) (Length + Breadth) × 2 = Perimeter - 1

2 × Length+ 2(3x + 2) = 16x + 10 --- 1

2 × Length = 16x + 10 - 6x - 4

= 10x + 6 ---------- 1

Length = 5x + 3 ---------- 1 - 3

---------- 12

(5) (a) (i) $2(28.2+15.3)$ ---------- 1
2×43.5
87cm ---------- 1 - 2

(ii) $87\text{cm} \times 18$ ---------- 1
1566cm ---------- 1
15.66m or 16m ---------- 1 - 3

(iii) Rs. 20.50×16 ---------- 1
Rs. 328 ---------- 1
or
Rs. 20.50×15.66 ---------- 1
Rs. 321.03 ---------- 1 - 2

b) $4x + 5 = 61$ ---------- 2
$4x + 5 - 5 = 61 - 5$ ---------- 1
$4x = 56$ ---------- 1

$\frac{4x}{4x} = \frac{56}{4}$

$x = 14$ ---------- 1 - 5
---------- 12

(6) (i) 50000 : 80000 : 100000 ---------- 1
5 : 8 : 10 ---------- 1 - 2

(ii) 12 : 10 : 7 ---------- 1

(iii) $5 \times 12 : 8 \times 10 : 10 \times 7$ ---------- 1
60 : 80 : 70 ---------- 1 - 2
6 : 8 : 7

(iv) Dilini : Fathima : Ganesha
6 : 8 : 7

(iv) Profit as a fraction.

$\frac{6}{21} : \frac{8}{20} : \frac{7}{20}$ ---------- 1

Dilini's profit = Rs. $210000 \times \frac{6}{21}$ ---------- 1

= Rs. 60000 ---------- 1

Fathima's profit = Rs. $210000 \times \frac{8}{21}$ - 1

= Rs. 80000 -------- 1

Ganesha's profit = Rs. $210000 \times \frac{7}{21}$ - 1

= Rs. 70000 ------- 1 - 7
---------- 12

(7) (a) (i) 50% ---------- 1

(ii) 70% ---------- 1

(iii) 240% ---------- 1

(iv) $\frac{1}{4}$ ---------- 1

(v) 6 ---------- 1

(vi) 150 ---------- 1 - 6

(b) 30% $\rightarrow$ Rs . 7800 ---------- 1

Salary = $\frac{7800}{30} \times 100$ ---------- 1

= Rs. 26000 ---------- 1 - 3

(c) No. of boys = 40 - 24 = 16 ---------- 1

$\frac{16}{40} \times 100\,\%$ ---------- 1

40% ---------- 1 - 3
---------- 12

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