

ITL Public School

Answer Key Summative Assessment – 1 (2015-16)

Mathematics – Set A

Date:

Class: VII

Time: 3 hrs

M. M: 90

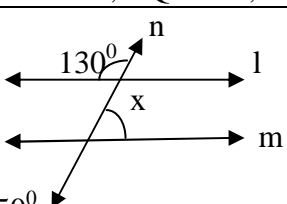
General Instructions:

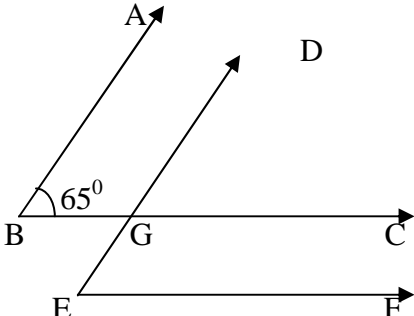
1. Read the question paper carefully and answer legibly.
2. All questions are compulsory.
3. The question paper consist of 31 questions divided into four sections A,B,C and D
4. Section A comprises of 4 question of 1 mark each, section B comprises of 6 questions of 2 marks each, Section C comprises of 10 questions of 3 marks each and Section D comprises of 11 questions of 4 marks each
5. Use of calculators is not permitted.

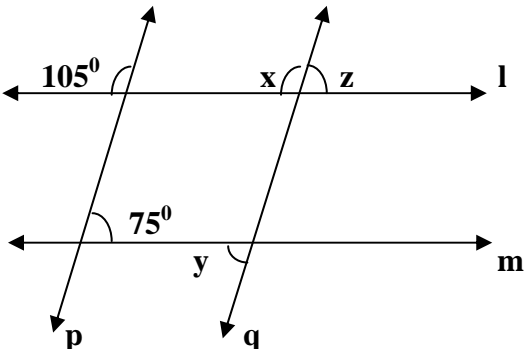
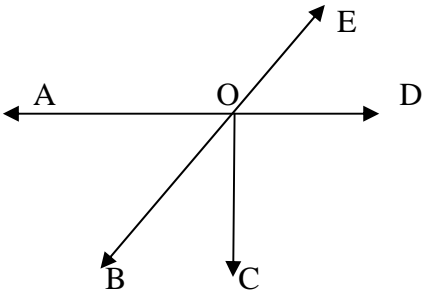
Section – A

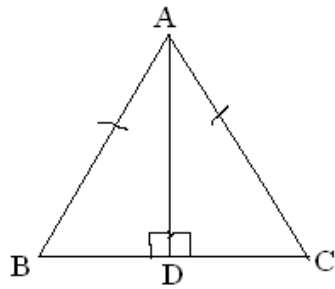
Q1.	Find the complement of 75° . 15°	1
Q2.	In ΔPQR and ΔSTU , $PQ = ST$, $QR = TU$ and $\angle Q = \angle T$. Name the congruence criterion by which the two triangles will be congruent. SAS	1
Q3.	Write a pair of negative integers whose difference is -10. -15 and -5 , $-15 - (-5) = -15 + 5 = -10$	1
Q4.	Compare: 1.05×10^5 and 1.5×10^4 $1.05 \times 10^5 > 1.5 \times 10^4$	1

Section – B

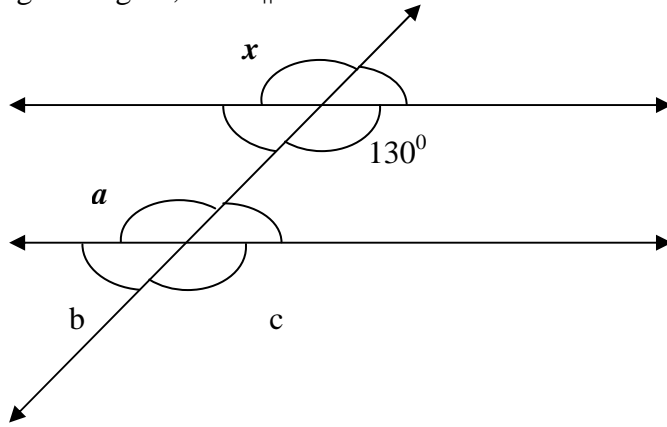
Q5.	Solve $5l - 3 = 12$. $5l = 12 + 3$ $5l = 15$ $l = 3$	2
Q6.	a) Express 235.5223 in the standard form. 2.355223×10^2 b) To what power (-3) should be raised to get -27? 3	2
Q7.	If $\Delta PQR \cong \Delta XYZ$, write all the corresponding sides and angles of both the triangles which will equal. $PQ = XY$, $QR = YZ$, $PR = XZ$, $\angle P = \angle X$, $\angle Q = \angle Y$, $\angle R = \angle Z$	2
Q8.	Find the value of x . if $l \parallel m$  $x + 130 = 180$, $x = 180 - 130 = 50^\circ$	2
Q9.	Shubham withdraws Rs. 7000 from his bank account in which he deposited Rs.8,500 the previous week. If withdrawal of amount from the account is represented by a negative integer, then how will you represent the amount deposited? Find the balance in Shubham's account after withdrawal. Amount deposited = + 8500 Amount withdrawal = - 7000 Balance in the account = $8500 + (-7000) = 8500 - 7000 = \text{Rs. } 1500$	2
Q10.	Find 3 rational numbers between $\frac{-2}{3}$ and $\frac{-1}{7}$.	2

	LCM of 3 and 7 = 21 $\frac{-2 \times 7}{3 \times 7} = \frac{-14}{21}$, $\frac{-1 \times 3}{7 \times 3} = \frac{-3}{21}$ hence 3 rational numbers b/w $\frac{-2}{3}$ and $\frac{-1}{7}$ are $\frac{-4}{21}$, $\frac{-5}{21}$, $\frac{-6}{21}$	
Section – C		
Q11.	In the given figure the arms of two angles are parallel. If $\angle ABC = 65^\circ$ then find the $\angle DGC$ and $\angle DEF$.  $\angle DGC = \angle ABC = 65^\circ$ (1) since $AB \parallel DE$ ($\frac{1}{2}$) $\angle DGC = \angle DEF = 65^\circ$ (1) since $BC \parallel EF$ ($\frac{1}{2}$)	3
Q12.	The perimeter of a triangle is 72cm and the lengths of the sides are in the ratio 2:3:4. Find the lengths of the three sides. Let the sides be $2x$, $3x$ and $4x$ ($\frac{1}{2}$) ATQ perimeter = $2x + 3x + 4x = 72$ (1) $9x = 72$, $x = 8$. ($\frac{1}{2}$) Hence sides are $2 \times 8 = 16\text{cm}$, $3 \times 8 = 24\text{cm}$, $4 \times 8 = 32\text{cm}$ (1)	3
Q13.	Simplify using laws of exponents: a) $(-1)^{201} \times (-3)^4$ $(-1) \times 81$ (1 mark) = -81 ($\frac{1}{2}$) b) $[2^2]^3$ $2^{2 \times 3} = 2^6$ ($\frac{1}{2}$) = 64 ($\frac{1}{2}$) ($[a^m]^n = a^{mn}$) ($\frac{1}{2}$)	1 $\frac{1}{2}$ 1 $\frac{1}{2}$
Q14.	In an isosceles ΔABC , in which $AB = AC$, AD is the median to the side BC . Is $\Delta ADB \cong \Delta ADC$? Give reasons to support your answer. Fig. (1 mark) $AB = AC$ (given) ($\frac{1}{2}$ mark) $BD = CD$ (AD is the median) ($\frac{1}{2}$ mark) $AD = AD$ (common) ($\frac{1}{2}$ mark) $\Delta ADB \cong \Delta ADC$ (By SSS) ($\frac{1}{2}$ mark)	3
Q15.	Anvesha thinks of a number. If he takes 5 away from $\frac{3}{2}$ of the number, the result is 23. Find the number. Let the no. be x ATQ $\frac{3}{2}x - 5 = 23$, $\frac{3}{2}x = 23 + 5$, $3x = 28 \times 2$, $x = \frac{28 \times 2}{3}$, $x = 14$ Hence the no. she thought is 14.	3
Q16.	In a class of 35 students, $\frac{1}{5}$ of the total number of students like to study English, $\frac{2}{5}$ of the total number like to study Mathematics and the remaining students like to study Science. a) How many students like to study English? Statements ($\frac{1}{2}$ mark), No. of students who like English = $\frac{1}{5} \times 35 = 7$ ($\frac{1}{2}$ mark) b) How many students like to study Science? No. of students who like Maths = $\frac{2}{5} \times 35 = 2 \times 7 = 14$ ($\frac{1}{2}$ mark) No. of students who like Science = $35 - (7 + 14) = 35 - 21$ (1 mark) = 14 ($\frac{1}{2}$ mark)	3
Q17.	After simplifying put appropriate sign in the box. $39 + (-21) - 18$ $39 - (-21) + (-18)$ $39 - 21 - 18$ $39 + 21 - 18$	3

	$\frac{39 - 39}{0} < \frac{39 + 3}{42}$	
Q18.	<p>Ranbir's father's age is 4 years more than 4 times Ranbir's age. Find Ranbir's age, if his father is 44 years old.</p> <p>Let Ranbir's age be x yrs ($\frac{1}{2}$ mark)</p> <p>ATQ $4x + 4 = 44$ (1 mark)</p> <p>$4x = 44 - 4$ ($\frac{1}{2}$ mark), $x = 40/4$ ($\frac{1}{2}$ mark), $x = 10$</p> <p>Hence Ranbir's age is 10 yrs. ($\frac{1}{2}$ mark)</p>	3
Q19.	<p>a) Arrange the following in ascending order : $\frac{-2}{7}, \frac{-2}{3}, \frac{-2}{5}$</p> <p>($\frac{1}{2}$ mark for each correct place) $\frac{-2}{3} < \frac{-2}{5} < \frac{-2}{7}$</p> <p>b) Represent $\frac{-7}{3}$ on the number line.</p> <p>It lies between -2 and -3 ($\frac{1}{2}$ mark), no. line equal divisions ($\frac{1}{2}$ mark) correct point ($\frac{1}{2}$ mark)</p>	3
Q20.	<p>Find the value of x, y, z if $l \parallel m$ and $p \parallel q$.</p>  <p>$x = 105^\circ$ (Corresponding angles) (1 mark)</p> <p>$y = 75^\circ$ (Alternate angles) (1 mark)</p> <p>$y = z = 75^\circ$ (Alternate exterior angles) (1 mark)</p>	3
Section – D		
Q21.	<p>Name the following pairs of angles :</p> <ol style="list-style-type: none"> Vertically opposite angles. $\angle EOD$ and $\angle AOB$ Adjacent complementary angles. $\angle AOB$ and $\angle BOC$ Linear pair. $\angle AOE$ and $\angle EOD$ Equal supplementary angles. $\angle AOC$ and $\angle COD$ 	4
Q22.	<p>ABC is an isosceles triangle with $AB = AC$ and AD is one of its altitudes.</p> <ol style="list-style-type: none"> State the three pairs of equal parts in $\triangle ADB$ and $\triangle ADC$. (2 marks) <p>$AB = AC$ (Given) , $\angle ADB = \angle ADC = 90^\circ$, $AD = AD$ (Common)</p> <ol style="list-style-type: none"> Is $\triangle ADB \cong \triangle ADC$? Give reason. By RHS (1 mark) Is $BD = CD$? Give reason. CPCT ($\frac{1}{2}$ mark) Is $\angle BAD = \angle CAD$? Give reason. CPCT ($\frac{1}{2}$ mark) 	4



Q23.	<p>a) Each side of a regular polygon is 4.6cm in length. The perimeter of the polygon is 23cm. Find the number of sides of the polygon. Statements (½ mark) No. of sides = perimeter ÷ side = $23 \div 4.6 = 5$</p> <p>b) How much less is 300.5 km than 405.7 km? $405.7 - 300.5 = 105.2$ Hence statement</p>	<p>2 ½ 1 ½</p>
Q24.	<p>Simplify using laws of exponents: $\frac{343 \times 3^3 \times 64}{12^2 \times 2^4 \times 7}$ (Also mention the laws used)</p> $\frac{7^3 \times 3^3 \times 2^6}{(2 \times 3)^2 \times 2^4 \times 7} = \frac{7^3 \times 3^3 \times 2^6}{2^2 \times 3^2 \times 2^4 \times 7} = \frac{7^3 \times 3^3 \times 2^6}{2^{2+4} \times 3^2 \times 7} = \frac{7^3 \times 3^3 \times 2^6}{2^{2+4} \times 3^2 \times 7} = \frac{7^3 \times 3^3 \times 2^6}{2^6 \times 3^2 \times 7}$ $= 7^{3-1} \times 3^{3-2} \times 2^{6-6} = 7^2 \times 3^1 \times 2^0 = 49 \times 3 \times 1 = 147$ <p>Laws (1 mark)</p>	4
Q25.	<p>A certain freezing process requires that room temperature be lowered from 40°C at the rate of 5°C every hour. Find the room temperature 10 hours after the process begins. Initial temp. = 40°C (½ mark) Rate of change = -5°C per hr (½ mark) Change in 10 hrs = $-5 \times 10 = -50^\circ\text{C}$ (1 mark) Final temp. = $-50 + 40 = -10^\circ\text{C}$ (2 marks)</p>	4
Q26.	<p>In a class test containing 18 questions, 5 marks are given for every correct answer, (-2) marks are given for every incorrect answer and zero for not attempting any question.</p> <p>a) Garima attempts all questions but only 12 of her answers are correct. What will be her score? Statements (½ mark), $12 \times (+5) + 6 \times (-2) = 60 + (-12) = 48$</p> <p>b) One of her friends attempted 11 questions but gets only 6 answers correct. What will be her score? $6 \times (+5) + 5 \times (-2) = 30 + (-10) = 20$</p>	2 + 2
Q27.	<p>Find the value of :</p> <p>a) $\left[\frac{9}{2} \times \left(\frac{-7}{4} \right) \right] + \left[(-4) \div \frac{2}{3} \right]$ $\frac{-63}{8} + \left[-4 \times \frac{3}{2} \right] = \frac{-63}{8} - \frac{12}{2} = \frac{-63-48}{8} = \frac{-111}{8}$</p> <p>b) $\left[\frac{5}{63} - \left(\frac{-6}{21} \right) \right] \div \left[\frac{5}{3} + \frac{3}{5} \right]$ $\frac{5+18}{63} \div \frac{25+9}{15} = \frac{23}{63} \times \frac{15}{34} = \frac{23}{21} \times \frac{5}{34} = \frac{115}{714}$</p>	<p>2 2</p>
Q28.	<p>Simplify using laws of exponents: (Also mention the laws used)</p> <p>a) $\frac{a^2 \times a^3 \times b^3 \times b^4}{a^5 \times b^2} = \frac{a^{2+3} \times b^{3+4}}{a^5 \times b^2} = \frac{a^5 \times b^7}{a^5 \times b^2} = a^{5-5} \times b^{7-2} = a^0 \times b^5 = b^5$</p> <p>b) $2^0 \times 3^0 \times 4^0 = 1 \times 1 \times 1 = 1$ Laws (1mark)</p>	<p>3 1</p>

Q29.	<p>In the given figure, line $l \parallel m$ and n is transversal. Find the value of x, a, b and c.</p>  <p> $x = 130^\circ$ (VOA) $a = 130^\circ$ (Alternate angles) $a = c = 130^\circ$ (VOA) $b + c = 180$ (Linear pair) $b = 180 - 130$, $b = 50^\circ$ 1 mark each part </p>	4
Q30.	<p>a) Seema reads $\frac{1}{3}$ part of a book in 1 hour. How much part of the book will she read in $1\frac{2}{3}$ hours?</p> <p>Part of book read in $1\frac{2}{3}$ hrs = $1\frac{2}{3} \times \frac{1}{3} = \frac{5}{3} \times \frac{1}{3} = \frac{5}{9}$</p> <p>b) If Sanchit finishes the same book in $1\frac{3}{4}$ hours. How much part of the book he would have read in 1 hour?</p> <p>Part of book read in 1 hr = $1 \div 1\frac{3}{4} = 1 \div \frac{7}{4} = \frac{4}{7}$</p> <p>c) Who read the book faster?</p> <p>$\frac{1}{3} < \frac{4}{7}$, Hence Sanchit read faster.</p>	1.5 1.5 1
Q31.	<p>The students of class VII of a school decided to plant trees in the school. Some of the trees were fruit trees. The numbers of non-fruit trees were 5 more than 2 times the number of fruit trees. Find the number of fruit trees planted if they planted 75 non-fruit trees. What value do you learn from this?</p> <p>Let the no.of fruit trees be x ($\frac{1}{2}$ mark) The no.of non-fruit trees = 75 ATQ $2x + 5 = 75$ (1 mark) $2x = 75 - 5$ ($\frac{1}{2}$ mark), $x = 70/2$ ($\frac{1}{2}$ mark), $x = 35$ ($\frac{1}{2}$ mark) Value – We should plant more and more trees. (1 mark)</p>	4

