FORMATIVE CRITERION TEST 1
TOPIC: RATIONAL NUMBERS

Name: ____________________  Age: __________
Class: ____________________  Roll No. __________
School: ____________________

Q1. For rational number \( \frac{181}{-1000} \), Numerator = ____ and Denominator = ____

Q2. If Numerator is 16 - 48 and Denominator is 45 - 33, Rational Number formed is ____

Q3. Fill in the blanks:
   (i). \( \frac{21}{91} = \frac{\_}{65} \)
   (ii). Lowest form of rational number \( \frac{-42}{84} \) is ____
   (iii). The equivalent form of \( \frac{7}{9} \) so that numerator may be equal to -98 will be ____
   (iv). The equivalent form of \( \frac{9}{4} \) so that denominator may be equal to -80 will be ____
   (v). Standard form of rational number \( \frac{-428}{96} \) is ____

Q4. Fill in the blanks by correct symbol out of >, = and <.
   (i). \( \begin{array}{c|c|c}
         \(-15\) & \(-10\) & \9 \\
         \(-3\) & \7 \\
   \end{array} \)
   (ii). \( \begin{array}{c|c|c}
         \(-3\) & \5 \\
         \7 & \6 \\
   \end{array} \)
   (iii). \( \begin{array}{c|c|c}
         \(-4\) & \(-9\) & \(-5\) \\
         \(-9\) & \7 & \(-7\) \\
   \end{array} \)
   (iv). \( \begin{array}{c|c|c}
         \(-3\) & \5 \\
         \16 & \-8 \\
   \end{array} \)
   (v). \( \begin{array}{c|c|c}
         \(-16\) & \13 \\
         \20 & \-21 \\
   \end{array} \)
Q5. On the number line represent \( \frac{9}{12} \).

Q6. Let O, A, B represent the numbers 0, 5, -7 respectively on the number line. Four points P, Q, R, S are marked between O and A such that OP = PQ = QR = RS = SA. Two points T, U are marked between O and B such that OT = TU = UB. What are the rational numbers represented by the points P, Q, R, S, T and U?

\[ \text{B} \quad \text{U} \quad \text{T} \quad \text{O} \quad \text{P} \quad \text{Q} \quad \text{R} \quad \text{S} \]

Q7. Write True or False and correct the False statements.

(i) \( \frac{1}{0} \) is not a rational number.

(ii) Equation \( 4x + 2 = 0 \) can be solved in fractions.

(iii) All rational numbers are fractions.

(iv) All integers are rational numbers.

(v) \( \frac{22}{46} \) is equivalent to \( \frac{2}{6} \).

291
FORMATIVE CRITERION TEST 2
TOPIC: ADDITION, SUBTRACTION AND MULTIPLICATION OF RATIONAL NUMBERS

Name: ___________________ Age: _________
Class: ___________________ Roll No. _________
School: ___________________

Q1. Simplify and express the result as a rational number in standard form.

(i) \( \frac{-17}{4} + 0 + \frac{9}{6} + \frac{27}{28} + \frac{-11}{16} \)

(ii) \( \frac{13}{6} \times \frac{-18}{91} + \frac{14}{-9} \times (-27) \)

(iii) \( \frac{1}{14} + \frac{-5}{28} + \frac{7}{-35} \)

Q2. What number should be subtracted from \( \frac{-32}{56} \) so as to get \( \frac{-27}{91} \)?

Q3. What number should be added to \( \frac{-16}{57} \) so as to get \( \frac{95}{27} \)?
Q4. Fill in the blanks:

(i). \[-\frac{4}{13} \times \frac{3}{-19} = -1\]

(ii). \[-\frac{19}{21} \times \frac{3}{-17} = 0\]

(iii). \[\frac{17}{26} - \frac{4}{13} = \frac{1}{13}\]

(iv). \[\frac{14}{7} \times \frac{-21}{91} = \frac{-2}{7}\]

(v). \[\frac{15}{34} - \frac{-14}{42} = \frac{1}{6}\]

Q5. Verify the following properties by taking \(x = \frac{-1}{4}, y = \frac{-5}{12}, \text{ and } z = \frac{19}{36}\):

(i). \(x \times (y \times z) = (x \times y) \times z\)

(ii). \(x \times (y + z) = xy + xz\)
Q1. Find the value of
   (i) \( \frac{4}{17} + \left( \frac{-3}{98} \right) \)
   (ii) \(-17 + \left( \frac{-15}{2} \right) \)

Q2. For \( x = \frac{-7}{11}, \ y = \frac{-19}{33} \). Is \((x - y)^{-1} = x^{-1} - y^{-1}\)?

Q3. The product of two rational numbers is \(-\frac{72}{65}\). If one of the number is \(-\frac{8}{15}\), find the other?
Q4. Find two rational numbers between \(-\frac{8}{15}\) and \(-\frac{17}{65}\) ?

Q5. Fill in the blanks:
(i) Rational number which equals its reciprocal 
(ii) Rational number between two rational numbers 
(iii) Rational number which has no reciprocal 

Q6. Correct the false statements:
(i) There is no rational number with negative reciprocal 
(ii) \((x - y) + z = x + z - x + z\) is true for all values of \(z > 0\).
(iii) \((x + y) \cdot z = x + (y \cdot z)\) is true for \(y = z\).
(iv) If \(x > y\), then \(x^{-1} < y^{-1}\)
(v) \(x + y = y + x\) for all \(x, y > 0\).

Q7. Verify that \((x + y)^{-1} = x^{-1} + y^{-1}\) by taking \(x = -\frac{14}{56}, y = -\frac{56}{63}\).
Q1. Convert each of the following into decimals.

(i) \( \frac{175}{200} \)  
(ii) \( \frac{-305}{160} \)

Q2. Which of the following are terminating and non-terminating decimals and why? Answer without actual division.

(i) \( \frac{27}{25} \)  
(ii) \( \frac{129}{43} \)  
(iii) \( \frac{-1331}{40} \)  
(iv) \( \frac{19}{180} \)  
(v) \( \frac{0.28}{0.42} \)

Q3. Express as non-terminating decimals.

(i) \( \frac{5}{37} \)  
(ii) \( \frac{17}{120} \)
Q4. Simplify and put the result as \( \frac{p}{q} \).

(i). \( 256.192 \times 0.144 \)

(ii). \( 0.4 \times 0.004 \times 0.005 \)

(iii). \( (5.76 + 1.98) - (29.2 - 17.8) \)

Q5. Write true or false.

(i). \( p \) has a terminating decimal representation, if \( q \) is prime.

(ii). If \( \frac{r}{s} \) and \( \frac{x}{y} \) are terminating decimals, then so does \( \frac{r}{s} + \frac{x}{y} \).

(iii). If \( \frac{r}{s} \) and \( \frac{x}{y} \) are non-terminating decimals, then so does \( \frac{r}{s} \times \frac{x}{y} \).

(iv). If \( \frac{r}{s} \) is a terminating decimal and \( \frac{x}{y} \) is a non-terminating decimal, then \( \frac{r}{s} \times \frac{x}{y} \) may have terminating decimal representation.

(v). If \( \frac{r}{s} \) is a terminating decimal and \( \frac{x}{y} \) is a non-terminating decimal, then \( \frac{r}{s} + \frac{x}{y} \) may have a non-terminating decimal representation.
FORMATIVE CRITERION TEST 5
TOPIC: POSITIVE EXPONENTS

Name: ___________________________  Age: __________________
Class: ___________________________  Roll No. ________________
School: __________________________

Q1. The rational number $\frac{-343}{1728}$ can be expressed in the power notation as $\frac{r}{-11}$

Q2. Express $\left(\frac{-11}{13}\right)^3$ as a rational number $\frac{p}{q}$

Q3. The absolute value of $\left(\frac{-11}{-12}\right)^3$ is __________

Q4. The reciprocal of $\left(\frac{2}{9}\right)^2 \times \left(\frac{9}{2}\right)^4$ is __________

Q5. Fill in the blanks:
   (i). $(-8)^{12} + (-8)^{16} = \frac{1}{(-8)}$
   (ii). $\left(\frac{4}{9}\right) \times \left(\frac{4}{9}\right) = \left(\frac{4}{9}\right)$
   (iii). $(-11)^6 + (-11)^4 = (-11)$
   (iv). $\left(\frac{-4}{5}\right)^2 = \left(\frac{4}{5}\right)$

Q6. Simplify:
   a. $\left(\frac{11}{4}\right)^3 - \left(\frac{9}{4}\right)^2 \times 2^2$
Q7. Which is greater among rational numbers \( \frac{4^2}{3} \) and \( \left( \frac{4}{3} \right)^2 \)? Insert one rational number between them.
Q1. Using the laws of exponents, express each of the following as a rational number with positive exponents.

(i) \((3^6)^2 = \frac{1}{9}\)

(ii) \((8)^{-3} \times (-8)^{-4} = \frac{1}{32}\)

(iii) \((4^5 \times 4^{10}) \times 4^{-7} = \frac{4}{9}\)

(iv) \(\left(\frac{2}{9}\right)^{-3} = \frac{27}{8}\)

Q2. Write the value of:

(i) \((19.16)^0 = 1\)

(ii) \(\left(\frac{4}{-8}\right)^{-2} = \frac{2}{-1}\)

(iii) \((-8)^3 \times 9^{-15} = \frac{1}{32}\)

Q3. By what number should we multiply \((16.88)^8\) so that product may be equal to \((16.88)^2\)

a. \((16.88)^{10}\)

b. \((16.88)^{10}\)

c. \((16.88)^2\)

d. \((16.88)^2\)

Q4. By what number should \((-8)^6\) be divided so that the quotient may be equal to \((-8)^2\) ?

a. \((-8)^4\)

b. \((-8)^2\)

c. \((-8)^2\)

d. \((-8)^4\)
Q5. The reciprocal of the rational number \( \frac{1}{2} + \left( \frac{2}{5} \right)^{-2} \) is

a. 100  

b. \((2)^2 \times (5)^2\)

c. \(\frac{1}{100}\)

d. none of these

Q6. Find p so that \(\left( \frac{11}{13} \right)^4 \times \left( \frac{11}{13} \right)^{-6} = \left( \frac{11}{13} \right)^{-3} \times 13^{-1}\)

Q7. Simplify:

\[
\left( \left( \frac{-12}{19} \right)^{-4} \right)^{-3} \times \left( \frac{19}{12} \right)^{\frac{7}{2}} \times \left( \frac{19}{12} \right)^{-4} \times (3)^{-1}
\]

Q8. Express the number 625000000000 in the form of \(k \times 10^n\) with \(n = 11\).

Q9. Write True or False and correct the false statements.

(i) For all integers \(a \& b\) \((a + b)^2 > a^2 + b^2\).

(ii) For all rational numbers \(x\), reciprocal of \(x^m = (\text{reciprocal of } x)^m\).

(iii) \(x^m + x^n = x^{m-n}\) is true for all \(x > 0\) and \(m > n\)

(iv) \(x^0 \times x^0 = 1\) true for all non-zero values of \(x\).
Q1. Replace each * in the following table by a suitable number, if x and y varies directly.

<table>
<thead>
<tr>
<th>x</th>
<th>7.2</th>
<th>3</th>
<th>14</th>
<th>0.5</th>
<th>15</th>
<th>60</th>
<th>0.25</th>
</tr>
</thead>
<tbody>
<tr>
<td>y</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q2. Find the missing terms in the above table if P (pressure) and V (volume) varies inversely.

<table>
<thead>
<tr>
<th>P</th>
<th>80.00</th>
<th></th>
<th></th>
<th>76.00</th>
<th>115.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>11.25</td>
<td>10.00</td>
<td>13.50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q3. u and w vary directly as each other. When u is 2.5, w is 7.5, which of the following is possible pair of corresponding values of u and w?

a. 13 and 78
b. 12.5 and 47.5
c. 15 and 30
d. none of these

Q4. r and s vary inversely as each other. When r is 6 and s is 15. Which of the following is a possible pair of corresponding values of r and s?

a. 18 and 5
b. 45 and 2
c. 22.5 and 4.0
d. all the above

Q5. If the book of 1200 pages is 6.5cm thick, then what would be the thickness of book containing 500 pages?
Q6. If the car covers 650km of the distance in four and a half hours. How much time will be taken by car to cover 825km? (assume that speed of the car remains constant).

Q7. 14 men can reap a field in 25 days. If 10 men are engaged, how many days will they take to complete the work?

Q8. Ajay can complete the syllabus in the 3 days, if he revises 8 lessons everyday. How many lessons he needs to revise to finish the syllabus in 2 days?

Q9. Which of the following quantities vary directly as each other?
   a. The length(x) of the journey by car and amount of petrol(y) needed by the car.
   b. Speed(x) of the cyclist and the time(y) taken by the cyclist.
   c. The number(x) of the labourers hired to construct a road and the time(y) taken to finish the job.
   d. The length(x meter) of the cloth and the price(y per meter) of the cloth.
Q1. Write each of the following as percent.
   a. $\frac{4}{125} = \underline{\phantom{0000}}$
   b. $0.005 = \underline{\phantom{0000}}$
   c. $11 : 80 = \underline{\phantom{0000}}$

Q2. The value of 16.5% of 500m will be \underline{\phantom{0000}}

Q3. The value of $x$, if 0.5% of $x = 3$ will be \underline{\phantom{0000}}

Q4. Seventy five percent of the cost of T.V. is Rs.10500. Find its total cost.

Q5. Gunpowder contains 70% of nitre, 10% of sulphur and the rest of it contains charcoal.
    Find the amount of charcoal in 5kg of gunpowder.

Q6. In a test, Neeta answered 60% of the questions correctly. If she answered 10 questions incorrectly, find the total number of questions given in the test.
Q7. The simple interest on a certain sum for three years at 14% per annum is Rs 232.20. Find the sum.

Q8. A sum of money at simple interest doubles itself in 8 years 4 months. In how much time will it triple itself at the same rate?

Q9. Plain envelopes are bought at the rate of 10 for Rs 5. At what rate should they be sold in order to gain 60%?

Q10. A shopkeeper loses 5% by selling a watch for Rs 1250. For how much must he sell to gain 10%?
FORMATIVE CRITERION TEST 9
TOPIC: ALGEBRAIC EXPRESSIONS

Name: --------------------------- Age: ______
Class: ________________ Roll No. ______
School: ________________

Q1. The product of $0.6pq^2r$ and $1.2p^2qr$ is
   a. $7.2p^3q^3r^2$
   b. $0.72p^3q^3r^2$
   c. $0.072p^3q^3r^2$
   d. $0.72p^2q^3r$

Q2. The product of $32a^2bc$, $-10b^2c^2$ and $-2c^2$ is
   a. $640a^3b^3c^4$
   b. $-64a^3b^3c^4$
   c. $64a^3b^3c^3$
   d. $-640a^3b^3c^3$

Q3. The product of $\frac{1}{4}abc$, $\frac{8}{9}a^2b^2c^2$ and $\frac{3}{2}a^3b^3c^3$ is
   a. $\frac{a^6b^6c^6}{24}$
   b. $\frac{a^3b^3c^3}{72}$
   c. $\frac{a^6b^6c^6}{3}$
   d. none of these

Q4. The product of $-0.8x$, $1.2yz$ and $-0.2xz$ is
   a. $1.92xyz$
   b. $0.192xyz$
   c. $-0.192x^2y^2z^2$
   d. $0.192x^2y^2z^2$

Q5. The numerical coefficient in the product of $24abc^2$, $10bc^2d$ and $-2a^2cd$ is ______

Q6. The literal part in the product of $-2.981a^2z^2$, $\frac{-1584}{141}b^2y^2$ and $\frac{12.98}{249}c^2x^2$ is

Q7. Fill in the blanks:
   (i). $(xy)(yx)(xyz)(0) =$ ______

306
(ii. \((xy)(yz)(xz) = \))

(iii. \(\left( \frac{3}{4} p^2q^2r \right) \left( \frac{-16}{27} p^2q^2r \right) \left( \frac{18}{2} p^2q^2r \right) = \))

(iv. \((1.1 a^3b^3c)(0.5b^3cd)(2ac^3d) = \))

Q8. Evaluate the product of \(7.2a^3b\), \(2.2ab^3\) and \(-0.3a^2b^2\) when \(a = -1\) and \(b = 0.1\)

Q9. Simplify:
   
   (i. \(\frac{1}{4} (3a^3b - 12ab^2)(4ab^2 + 8a^2b)\))

   (ii. \((x^2y - 0.6xy^2)(xy^2 - 0.4x^2y^2)\))

   (iii. \(10a^2 - 4a(a + 2b) - 3b(a - 2b)\))

Q10. Multiply and verify your result for \(p = 2\), \(q = 0.1\) and \(r = 0.3\) in the expression

\(\frac{1}{3} p^3q^2r (p^2 + q^2 + r^2)\)
Q1. Evaluate by using suitable identity.

1. \( \left( \frac{2}{9} x + 9y \right)^2 \)

2. \((-8m^3 + 7n^2)^2\)

3. \((0.1a^2 - 2.1b)^2\)

4. \((1.5p^3 - 3.6q^3)(1.5p^3 + 3.6q^3)\)

Q2. Simplify:

\[
\left( m^2 - \frac{1}{900} \right)^2 - \left( m^2 + \frac{1}{900} \right)^2
\]
Q3. Evaluate using identity:

(i) \((9.9)^2\)

(ii) \(997 \times 1003\)

(iii) \(157^2 - 154^2\)

Q4. Find the value of a if

\(5pqa = (5p + 2q)^2 - (5p - 2q)^2\)

Q5. Simplify:

\[\frac{3}{8} \cdot \frac{w(w - 16)}{16} - 4t \left( \frac{3}{16} \cdot \frac{w - 1}{w - 16} \right) - \frac{1}{16} \cdot \left[ 3 - 8t^2 \right]\]
Q1. The H.C.F. of the monomials $21p^2qr$ and $63pq$ is
   a. $27p^2qr^2$
   b. $21p^2qr$
   c. $7p^2qr$
   d. $21p^2qr^2$

Q2. The H.C.F. of the monomials $-36x^3y^2$, $63x^2y^3$ and $18x^3y$ is
   a. $-18x^2y^2$
   b. $-7x^2y$
   c. $9x^2y$
   d. $28x^2y^2$

Q3. The H.C.F. of the terms of the expression $-30a^2b^2c^3 + 45a^2b^3c^2 - 75a^3bc^2$ is
   a. $10a^2bc^3$
   b. $-3a^2bc^3$
   c. $-5a^2b^2c^2$
   d. $15a^2bc^2$

Q4. The H.C.F. of the terms of the expression $-0.4p^4 - 1.6p^3q^2 - 2.0p^3q^3$ is
   a. $-0.2p^3$
   b. $-0.2p^3q$
   c. $-0.4p^3$
   d. $-0.4p^3q$

Q5. The factorization of $36x^3yz^2 + 42xy^2z^3$ is
   a. $2xyz(18x^2z + 21yz^2)$
   b. $3xyz(12x^2 + 14yz)$
   c. $6xyz(6x^2 + 7yz)$
   d. none of these

Q6. The factors of $-27ab + 63ab$ is
   a. $9ab(3a^2 - 7b^2)$
   b. $-3ab(9a^2 - 21b^2)$
   c. $-9ab(3a^2 - 7b^2)$
   d. $3ab(9a^2 - 21b^2)$
Q7. Factorise:

a. $16ab^2 + 12ab + 4b + 3$

b. $25px^2 - 35px - 30q^2 + 42qx$

c. $36x^2 - 81y^2$

d. $81m^2 - 144mn + 64n^2$

e. $121p^2 + 100q^2 + 220pq$

f. $a^2 - (16 + 9x^2 - 24x)$

g. $81p^4 - (2q - r)^4$
Q1. Construct a \( \triangle ABC \) in which \( \angle C = 45^\circ \), \( AC = 4.5\text{cm} \) and \( BC = 5.4\text{cm} \).

Q2. Construct a \( \triangle GHK \) in which \( \angle H = \angle K = 6.5\text{cm} \) and \( \angle G = 75^\circ \). What kind of triangle is it?

Q3. Construct a \( \triangle XYZ \) in which \( \angle Y = 30^\circ \), \( \angle Z = 105^\circ \) and \( YZ = 6.4\text{cm} \).

Q4. Construct a \( \triangle DEF \) in which \( DE = 5.2\text{cm} \), \( \angle E = 90^\circ \) and \( \angle F = 45^\circ \).
Q5. Construct a \( \triangle PQR \) in which \( PQ = 4.5 \text{cm}, PR = 4 \text{cm} \) and \( QR = 6 \text{cm} \).

Q6. Which of the following triangles are possible?

a. \( \angle B = 90^\circ, \angle A = 100^\circ, AB = 5.6 \text{cm} \)

b. \( \angle A = 45^\circ, \angle B = 89^\circ, AB = 4.7 \text{cm} \)

c. \( PQ = 5.5 \text{cm}, PR = 4.7 \text{cm}, QR = 6.2 \text{cm} \)

d. \( DE = 3 \text{cm}, EF = 2.5 \text{cm}, DF = 6 \text{cm} \)

e. \( \angle C = 60^\circ, BC = 7.2 \text{cm}, AC = 4.6 \text{cm} \)
Name: ____________________  Age: __________
Class: ____________________  Roll No. __________
School: ____________________  Gender: ________

Q1. ΔABC is isosceles with AB = AC. If ∠ C = 75°, what is the measure of ∠ A?
   a. 75°  b. 50°  c. 45°  d. 55°

Q2. ΔPQR is isosceles with QP = QR. If ∠ Q = 40°, what is the measure of ∠ R?
   a. 60°  b. 75°  c. 70°  d. 40°

Q3. In ΔROS, ∠ O = ∠ S = 65°. Which of the sides of the triangle are equal?
   a. RO = OS  b. RS = OS  c. RS = OR  d. SR = OR = OS

Q4. In the figure above, equal sides have been shown by similar markings. The value of ∠ FDE is
   a. 120°  b. 60°  c. 30°  d. 45°

Q5. ΔPQR is isosceles with PR = QR. If ∠ PRQ = 50°. What is the measure of ∠ SPR.
   a. 120°  b. 60°  c. 30°  d. 45°
Q6. In the given figure, AC = BC and AD = DC. Find the value of:

(i) $\angle BCA = \quad$

(ii) $\angle BAC = \quad$

(iii) $\angle ACD = \quad$

(iv) $\angle DAC = \quad$

(v) $\angle ADC = \quad$

Q7. In the figure, name the

Greatest angle __________

Shortest angle __________

Q8. In the figure, $\triangle ABC$ is isosceles with $AB = AC$. EF $\parallel$ BC with E on AB and F on AC.

$\angle AEF = 40^\circ$, then

$\angle ABC \quad$

$\angle ACB \quad$

$\angle AFE \quad$

$\angle BAC \quad$

What type of triangle is $\triangle AEF$? __________

Q9. Fill in the blanks:

(i). Opposite angles of equal and _______ sides are _______.

(ii). The _______ angle is opposite to the longer side.

(iii). If angles opposite to the sides are equal then triangle is _______.

(iv). The _______ side is opposite to the smaller angle.

Q10. In the given figure, $\triangle SQR$ is isosceles with $SQ = SR$,

$\angle QSR = 70^\circ$ and $\angle SPQ = 35^\circ$. Find $x'$. 

315
Q1. \( \triangle ABC \) is right angled at C. If \( AB = 5\text{cm} \) and \( BC = 12\text{cm} \), the length of \( AC \) is
a. 17cm
b. 13cm
c. 14.5cm
d. 16.5cm

Q2. Which of the following is a Pythagorean triplet ?
a. 1, 1, 2
b. 7, 24, 25
c. 6, 8, 12
d. 8, 16, 17

Q3. The hypotenuse of a right triangle is 50cm. If one of the side is 48cm, the length of the other side is
a. 15cm
b. 23cm
c. 25cm
d. 14cm

Q4. Fill in the blanks:

(i). In a right triangle, the square of the hypotenuse is equal to the ______ of the squares of the other two sides.

(ii). If the square of one side of a triangle is equal to the sum of the squares of the other two sides then the triangle is a _______.

(iii). Of all the three sides in a right triangle, ________ is greatest.

Q5. A 500cm long ladder when set against the wall of a house reaches to a height of 48dm. How far is the foot of the ladder from the wall?
Q6. The two sides of a right angle triangle are equal and the square of the hypotenuse is 50 cm². Find the length of each side.

Q7. A man walks 15 m towards the east and another 20 m towards the south. Find the distance between his starting point and his present position.

Q8. A tree is broken at a certain height but the upper part is not completely separated. Its top touches the ground at a distance of 24 m from the base. If the point where it breaks be at a height of 7 m from the ground, find the total height before it broke.
FORMATIVE CRITERION TEST 15
TOPIC: CONSTRUCTION AND PROPERTIES OF TRIANGLE

Name: ___________________  Age: _________
Class: ___________________  Roll No. _________
School: ___________________

Q1. Fill in the blanks:
   a. Incentre of a triangle is the point of concurrence of the ______ of the triangle.
   b. Circumcentre of the triangle is the point of concurrence of the ______ of the triangle.
   c. Circumcentre, Incentre, Orthocentre and Centroid of ______ triangle coincide.
   d. Circumcentre of the obtuse angled triangle lie ______ the triangle.
   e. Circumcentre of the right triangle lies on its ______.
   f. Incentre of the triangle always lies ____ the triangle.

Q2. Draw a ΔPQR, where ∠ Q = 90, QR = 4cm and PR = 6.5cm. Locate its orthocentre.

Q3. Draw a ΔDEF, where ∠ D = 120, DE = 3.6cm and DF = 5.7cm. Draw perpendicular bisectors LM to the side DE, SR to the side DF and PQ to the side EF. Mark its circumcentre.
Q4. Draw a $\triangle ABC$ where $\angle B = \angle C = 75$ and $BC = 5.8\text{cm}$. Draw its angle bisectors $BM$, $CN$ and $AL$. Are all the three angle bisectors equal? If not, then which of them are equal?

Q5. Construct an equilateral $\triangle RST$ each of side equal to 6cm. Find the centroid and incentre of $\triangle RST$. Do they coincide?
FOMATIVE CRITERION TEST 16
TOPIC: SURFACE AREA

Name: ________________________  Age: ____________
Class: ______________________  Roll No. ____________
School: ______________________

Q1. Which of the following are the solid objects?
   a. Rectangle
   b. Classroom
   c. Playground
   d. Box

Q2. Fill in the blanks:
   (i) A cuboid has ______ faces, ______ vertices and ______ edges.
   (ii) The number of lateral faces of a cuboid is ______.
   (iii) Two adjacent faces of a cuboid meet in a line segment called its ______.
   (iv) All faces of a cube are ______.
   (v) A cuboid has ______ pairs of opposite faces.
   (vi) A cube and cuboid has ______ diagonals.
   (vii) Two edges of a cube and cuboid through a vertex makes an angle of ______ with each other.

Q3. In the given figure, name the
   (i) Face opposite to ABCD ________
   (ii) Faces adjacent to AEHD ________
   (iii) Faces which have common vertex G ________
   (iv) All the diagonals which are formed ________
   (v) Faces which meet in the edge HG ________

Q4. The surface area of cuboid which is 200cm by 156cm by 1.90m is
   a. 19768cm²
   b. 196708cm²
   c. 98840cm²
   d. 197680cm²
Q5. The surface area of cube whose edge is 2.2 mm is
   a. 2904mm²
   b. 4.84mm²
   c. 29.04mm²
   d. 10648mm²

Q6. If each side of the cube is halved, its surface area
   a. is halved
   b. becomes one – fourth
   c. becomes one – eighth
   d. becomes one – sixth

Q7. A hall is 8m long, 7m wide and 860cm high. Find the cost of white washing it at the rate of Rs. 3.70 per m².

Q8. A box is 60cm long, 40cm broad and 50cm high. Find the length of paper 40cm broad required for covering it from outside.

Q9. The length, breadth and height of a small store are respectively 10m10cm, 800cm and 500cm. It is to be pintoed inside the ceiling and on the walls but not on the floor. Find the total area to be painted.
Q1. State which concept out of area, surface area or volume is involved in the following activities?

a. Sowing of seeds in the field  
   b. Painting of a room  
   c. Carpeting of a floor  
   d. Air in the room  
   e. A box full of soapcakes  

Q2. The volume of a cuboid which is 200cm by 120cm by 90cm is 

a. 316000cm³  
   b. 2.16 x 10³ cm³  
   c. 216000cm³  
   d. 2060000cm³  

Q3. The volume of the cube whose edge is 1.5dm is 

a. 2.25dm³  
   b. 3.375dm³  
   c. 33.75dm³  
   d. 2.50dm³  

Q4. If each side of the cube is tripled its volume 

a. is tripled  
   b. becomes 9 times  
   c. becomes 18 times  
   d. becomes 27 times  

Q5. A cuboidal water tank is being constructed which is 10m long and 9.5m wide. How high must it be made to hold 760cu.cm. of water? 

a. 9.25m  
   b. 8m  
   c. 7.4m  
   d. 1.2m  

Q6. A box is 700cm long, 600cm wide and 5.6m high. How many soapcakes of 10cm by 6cm by 5cm can be placed in the box?
Q7. The surface area of the cube is 54cm$^2$. Find its volume.

Q8. A village having a population of 2000, requires 125 litres of water per head per day. It has a tank measuring 15m by 12m by 8m. For how many days the water of this tank will last?

Q9. Six rectangles two (3 x 2)cm$^2$, two (3 x 1)cm$^2$, two (2 x 1)cm$^2$ are given below:

Join them in such a way that line segments of same length are parallel to each other or coincident. What is the shape of solid do you obtain? Give its length, breadth and height.