MARKING SCHEME

SESSION ENDING EXAM:2018-19

CLASS : IX

SUBJECT : MATHEMATICS

| Q. No. | Marking Scheme | Mark Allotted |
| --- | --- | --- |
| 1. |  | ½ |
|  |  | ½ |
| 2. | Add: | ½ |
|  |  | ½ |
| 3. |  | ½  ½ |
| 4. |  | 1 |
|  |  |  |
| 5. | ∠BAD = 3k–40°, ∠CAD = 2k°. | ½ |
| 6. | No. of bags of wheat having weight more than 5kg=7  p(more than 5kg of flour)= | ½ |
|  |  | ½ |
| 7. |  | ½ |
|  |  | ½ |
|  | ∴ Two rational nos. are – | 1 |
| 8. | (i) =(100-2)(100+2)  Using identity (x-a)(x+a)=  = 1002 -22  = 10000-4  = 9996    (ii)  Using identity    =1000000-3300-121  =1000000-293700-121  = 1000000-293821  = 706179 | ½  ½  ½  ½ |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  | 1 |
| 9. | Area of parallelogram ABCD = CD × AE  = AB × AE  = 16 × 8  = 128 cm2 | ½  ½ |
|  | ∴ Area of parallelogram = AD × CF  128 = AD × 10  = AD  12.8cm = AD | ½  ½ |
| 10. | For each postulate | 1+1 |
| 11. | Perimeter of triangle = 540cm  12x+17x+ 25x = 540  x = = 10cm | ½ |
|  | So sides are = 12(10),17(10) and 25(10)  = 120cm,170cm and 250 cm  S = = 270 cm |  |
|  | Area = | ½ |
|  | = |  |
|  | = 3 = 9000 cm2 | ½ |
| 12. | Median =  63 = | 1 |
|  | 126–2=4x    31 = x | 1 |
|  |  |  |
| 13. | =(3x)3 + y3 + z3 – 3(3x)(y)(z)  = (3x+y+z)(9x2 +y2+z2 -3xy-yz-3xz)  Or  Find the value of *k*, if *x* – 1 is a factor of 4*x*3 + 3*x*2– 4*x* + *k*.  = 4(1) + 3(1) -4(1) +k =0  4+3-4+k =0  k =-3 | ½ |
|  |  | ½ |
|  |  | 1 |
|  |  |  |
|  |  |  |
| 14. | (i) For representing on number line correctly | ½ |
|  | (ii) For converting to linear equation in 2 variables | ½ |
|  | Finding solution  for correct plotting | 1  1 |
| 15. | For each correct answer = ½ | 3 |
|  |  |  |
| 16. | For given, to prove and figure | 1 |
|  | Proof: AC||BE (given)  ∴ ar (ΔABC) = ar (ΔACE) – (1) |  |
|  | as they have same base and lie between same parallels | 1 |
|  | Adding ar (ΔADC) both sides in (1)  ar (ΔABC) + ar (ΔADC) = ar (ΔACE) + ar (ΔADC) | 1 |
|  | ar (quad. ABCD) = ar (ΔADE)  OR  A  B  E  D  C  For correct figure  For correct construction  Proof:  AD is median  so BD = DC  area of ΔAB = × BD × AE  = × DC × AE  = area of ΔADC | 1  ½  ½  1 |
|  |
| 17. | For given, to prove and figure | 1 |
|  | Proof:  Consider ΔABC and ΔADE  AB = AD  given  AC = AE  ∠BAD = ∠EAC (given)  adding ∠ADC both sides  ∠BAD + ∠ADC = ∠EAC + ∠ADC  ∠BAC = ∠DAE  ∴ ΔABC ≅ ΔADE (SAS)  ∴ BC = DE (by cpct) | ½  ½  ½  ½ |
|  | (OR) |  |
|  | For given, to prove and figure | 1 |
|  | Proof: Consider ΔAPD and ΔBPE,  AP = PB (P mid pt. of AB)  ∠BAD = ∠ABER (given)  also ∠EPA = ∠DPB  add ∠EPD both sides  ∠EPA + ∠EPD = ∠DPB + ∠EPD  ∠APD = ∠BPE  ∴ ΔAPD ≅ ΔBPE (by ASA)  ∴ AD = BE (by cpct) | ½  ½  ½  ½ |
| 18. | Given, to prove and figure | ½ |
|  | Proof: PB = DC and AB||DC  so AE = CF and AE || CF  ∴ AECF is parallelogram | ½ |
|  | In Δ ABQ, E is mid pt. of AB and EP||AQ then by converse of mid pt. theorem  P is also mid pt. of BQ.  ∴ BP = PQ –(1)  Similarly in ΔDPC, we obtain  Q is mid point of DP.  ∴ DQ = QP – (2)  from (1) & (2) we get,  BP=PQ=DQ | ½  ½  ½  ½ |
| 19. | ∠BDC = 40° (Angles in same segment)  In ΔBDC,  ∠DBC+∠BDC+∠DCB=180°  60°+40°+∠DCB = 180°  ∠DCB = 180°–100° = 80°  given, AB=AC so ∠BAC = ∠BCA = 40°  ∴ ∠ECD = ∠BCD – ∠BCA  = 80°–40°=40°  (OR) | ½  1  ½  1 |
|  | A  B  D  C  E  2  3  4 | 1 |
|  | Given: In trapezium ABCD,  AB||CD and AD=BC  To prove: ABCD is cyclic trapezium  Construction: From B, draw BE||AD  Proof: AB||DE and AD||BE  so, ABCD is a parallelogram  so, ∠1 = ∠2 – (1)  Also AD=BC=BE  ∴ΔBEC is an isosceles triangle  ∴∠3=∠4 – (2)  Adding (1) and (2) we get  ∠2+∠3 = ∠1+∠4  180° = ∠1+∠4  ∴ ABCD is cyclic trapezium | ½  ½  ½  ½ |
| 20. | y:z=3:7  ∴ y = 3k, z=7k  y+z = 180°  3k+3k = 180°  10k = 180°  k = = 18°  ∴ y = 3k = 3×18°=54°  x+y = 180°  x+54° = 180°  x=18°–54°  x=126° | ½  ½  1  ½  ½ |
| 21. | Area covered by roller in one revolution = CSA of cylindrical roller  = 2= 2 44  So total area of ground = 500 | ½ |
|  |  | ½  ½  ½  ½  ½ |
| 22. | Total workers = 100 |  |
|  | (a)  (b) | 1  1 |
|  | Value: Children below 18 should not be kept as workers. Child labour is an abuse we should encourage them to go to school. | 1 |
| 23. |  | ½ |
|  | = | 1 |
|  | = | 1 |
|  | = 11–6 | ½ |
|  | 11–6 = a + b  ∴ a =11, b = –6 | ½+½ |
| 24. | Let force applied : y  And acceleration produced : x  So linear equation is  Y = 15x | ½ |
|  |  | 1  1 |
|  | For finding points   |  |  |  |  | | --- | --- | --- | --- | | x | 0 | 1 | -1 | | y | 0 | 15 | -15 | | ½ |
|  |  | 1 |
| 25. | *z*3 – 23*z*2 + 142*z* – 120 = *z*3 – *z*2 – 22*z*2 + 22*z* + 120*z* – 120  = *z*2(*z* –1) – 22*z*(*z* – 1) + 120(*z* – 1)  = (*z* – 1) (*z*2 – 22*z* + 120)  *Now,z*2 – 22*z* + 120 = *z*2 – 12*z* – 10*z* + 120  = *z*(*z* – 12) – 10(*z* – 12)  = (*z* – 12) (*z* – 10)  *z*3 – 23*z*2 – 142*z* – 120 = (*z* – 1)(*z* – 10)(*z* – 12) | 1  1  1  1 |
|  |  |  |
| 26. | For either theorem |  |
|  | Correct figure  given  To prove  construction  correct proof | 1  ½  ½  2 |
| 27. | * Drawing line segment 12.5 | ½ |
|  | * Correct construction of 30° and 15° angles at the ends of line segment. | 1+1 |
|  | * Drawing perpendicular bisectors | 1 |
|  | * Construction of required triangle | ½ |
| 28. | Construct a trapezium with parallel sides given  Construct a parallelogram in between  Find its height as 11.2 m  Area of trapezium by using formula = 196 m2  OR  Radius=  Height of cylinder h= 8m  L2 = h2+ r2  L2 = 64+36=100  L = 10 m  OR  Taruplin required for making tent =C.S.A. of Cone=  = 188.4 m2  ∴ area of cloth = Taruplin required for making tent  L .4 = L = 188.4  So L = 62.8 m  Total lenth of cloth = 62.8 + 0.20 = 63 m | 1  1  1  1  2  2 |
| 29. | Let radius be r m |  |
|  | Inner surface area of dome = 2 r2  Cost of white washing at the rate of Rs 2 per m2  = 2×2Πr2 = Rs 4Πr2 | ½ |
|  | 4Π r2 = 498.96  r2 =  r = m | ½  1 |
|  | (i) Inner curved surface area = 2Π r2  = 2×  = 249.48 m2 | ½  ½ |
|  | (ii) Volume of air inside dome =  =  = 523.9 m3 | ½  ½ |
| 30. | * Finding class mark of each interval correctly | 1 ½ |
|  | * Correct axes and values | 1 |
|  | * Drawing frequency polygon correctly | 1 ½ |
|  |  |  |
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