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Sss similarity theorem proof class 10

As a result of the EU General Data Protection Regulation (GDPR). We do not currently allow internet traffic on byju's website from countries in the European Union. This page did not serve any cookies to track or measure performance. Stay tuned! We'il be there soon. In general, there are several objects that have something in common between them. If you keep a close eye on them, see that some of them have the same shapes, but may have a different or same size, such numbers are called similar numbers. In the case of the triangle The two triangles should be similar if their respective angles are the same and the corresponding sides are proportionate. By using AAA theorem similarities, SSS to exothe similarities and SAS thetheact of similarities can be demonstrated that the two triangles are similar. AAA similarity recovery or criterion: If the appropriate angles of the two triangles are the same, then their respective parties are proportionate and triangular are similar.   In ΔABC and ΔPQR, ∠A = ∠P , ∠B = ∠Q , and ∠C = ∠R then AB PQ = BC QR = ACPR and ΔABC ∼ ΔPQR. Dagged: V ΔABC and ΔPQR, ∠A = ∠P, ∠B = ∠Q, ∠C = ∠R. For proof: AB PQ = BC QR = ACPR Construction : Draw LM so that PL AB = PM AC . Proof: In ΔABC and ΔPLM, AB = PL and AC =PM (After contruction) ∠BAC = ∠LPM(Dano) ∴ ΔABC ≅ ΔPLM (SAS congruence rule) ∴ ∠B = ∠L (Belonged to the Congenital Triugla) is therefore ∠B = ∠Q (Given) ∴ ∠L = ∠Q LQ transversal to LM i QR. Therefore ∠L = ∠Q (Proven) ∴ LM ∥ QR PL LQ = PM MR LQ PL = MR PM (Taking reciprocals) LQ PL + 1 = MR PM + 1 (Adding 1 to both sides) LQ+PL = MR+PM PM PQ PL = PR PM PQ AB = PR AC (AB = PL and AC =PM) AB PQ = AC PR (Taking Reciprocals) ...... (1) AB PQ = BC QR AB PQ = AC PR = BC QR ∴ ΔABC ~ ΔPQR SSS theorem similarities or criteria: If the sides of one triangle are proportional to the sides of the other triangles, then their respectable angles are the same and the triangular is similar. In ΔABC and ΔDEF, AB DE = BC EF = AC DF then ∠A = ∠D , ∠B = ∠E , and ∠C = ∠F and ΔABC ∼ ΔDEF Given: In ΔABC and ΔDEF, AB DE = BC EF = AC DF . To demonstrate: ∠A = ∠D, ∠B = ∠E and ∠C = ∠F Construction: Draw PQ, So DP = AB and DQ = AC. Proof: U ΔABC i ΔDEF, AB DE = AC DF (Given) DP DE = DQ DF (By Construction) DE DP = DF DQ (Taking Reciprocals) DE DP - 1 = DF DQ - 1 (Substracting 1 from both sides) DE-DP DP = DF-DQ DQ PE DP = QF DQ DP PE = DQ QF (DQ QF(DQ QF(Taking Reciprocals) PQ ∥ EF (After conversation of the underlying proportionality theorem) ∠P = ∠E i ∠Q = ∠F (Pair of corresponding angles) DP PE = DQ QF = PQ EF AB DE = AC DF = BC EF (Dano) ∴ PQ EF = BC EF ⇒ BC = PQ SAS similarity or criteria: If one angle of the triangle is equal to one corner of the second triangle and the sides, including these angles, are proportional, then the triangulars are similar. In ΔABC and ΔDEF, AB DE = AC DF and ∠A = ∠D then ΔABC ∼ ΔDEF.   Daed: V ΔABC and ΔDEF, AB/DE = AC/DF and ∠A = ∠D. Proof: ΔABC ~ ΔDEF Construction: Draw PQ so that DP = AB and DQ = AC. Proof: AB DE = AC DF DP DE = DQ DF DE DP = DF DQ (On mutual) DP + PE DP = DQ + QF DQ DP DP + PE DP = DQ DQ + QF DQ 1 + PE DP = 1 + QF DQ PE DP = QF DQ DP PE = DQ QF PQ ∥ EF (After conversation of the underlying proportional theorem) ∠P = ∠E, ∠Q = ∠F And ΔDPQ and ΔΔDEF, Hence ∠P = ∠E and ∠Q = ∠F ∴ ΔDPQ ~ ΔDEF (AA similarity criterion) ..... (1) In ΔABC and ΔDPQ, AB = DP, AC = DQ, ∠A = ∠D ΔABC ≅ ΔDPQ (By SAS axiom) ΔABC ~ ΔDPQ......... (2) From (1) and (2), ΔABC ~ ΔDEF AA similarity criterion: When two corresponding angles of two triangles are the same, two triangles are similar. This is called the AA similarity criterion.   In general, there are several objects that have something in common between them. If you keep a close eye on them, see that some of them have the same shapes, but may have a different or same size, such numbers are called similar numbers. In the case of the triangle The two triangles should be similar if their respective angles are the same and the corresponding sides are proportionate. By using AAA theorem similarities, SSS to exothe similarities and SAS thetheact of similarities can be demonstrated that the two triangles are similar. AAA similarity recovery or criterion: If the appropriate angles of the two triangles are the same, then their respective parties are proportionate and triangular are similar.   In ΔABC and ΔPQR, ∠A = ∠P , ∠B = ∠Q , and ∠C = ∠R then AB PQ = BC QR = ACPR and ΔABC ∼ ΔPQR. Dagged: V ΔABC and ΔPQR, ∠A = ∠P, ∠B = ∠Q, ∠C = ∠R. For proof: AB PQ = BC QR = ACPR Construction : Draw LM so that PL AB = PM AC . Proof: In ΔABC and ΔPLM, AB = PL and AC = PM (After contruction) ∠BAC = ∠LPM(Dano) ∴ ΔABC ≅ ΔPLM (SAS congruence rule) ∠B = ∠L (Belonged to the Congenital Triugla) therefore, ∠B = ∠Q (Given) ∴ ∠L = ∠Q LQ is transversal to LM i QR. Therefore ∠L = ∠Q (Proven) ∴ LM ∥ QR PL LQ = PM MR LQ PL = MR PM (Taking reciprocals) LQ PL + 1 = MR PM + 1 (Add 1 to both sides) LQ+PL PL = MR+PM PQ PL = PR PM PQ AB = PR AC (AB = PL i AC = PM) AB PQ = AC PR (Taking Reciprocals) ...... (1) AB PQ = BC QR AB PQ = AC PR = BC QR ∴ ΔABC ~ ΔPQR SSS theorem similarities or criteria: If the sides of one triangle are proportional to the sides of the other triangles, then their koti so enaki, trikotni pa podobni. V ΔABC in ΔDEF, AB DE = BC EF = AC DF nato ∠A = ∠D , ∠B = ∠E , in ∠C = ∠F in ΔABC ∼ ΔDEF Given: In ΔABC in ΔDEF, AB DE = BC EF = AC DF . Če želite dokazati: ∠A = ∠D, ∠B = ∠E in ∠C = ∠F Konstrukcija: Draw PQ, Tako da DP = AB in DQ = AC. Dokaz: U ΔABC i ΔDEF, AB DE = AC DF (Given) DP DE = DQ DF (By Construction) DE DP = DF DQ (Taking Reciprocals) DE DP - 1 = DF DQ - 1 (Substracting 1 from obe strane) DE-DP DP = DF-DQ DQ PE DP = QF DQ DP PE = DQ QF (Taking Reciprocals) PQ ∥ EF (Po konverzaciji osnovne proporcijalnosti teorem) ∠P = ∠E i ∠Q = ∠F (Par pripadajočih ugaoa) DP PE = DQ QF = PQ EF AB DE = AC DF = BC EF (Given) ∴ PQ EF = BC EF ⇒ BC = PQ SAS teorem o podobnosti or criteria: If one angle of a triangle is equal to one angle of the other triangle and sides including these angles are proportional , potem so trikotnika podobna. V ΔABC in ΔDEF, AB DE = AC DF in ∠A = ∠D nato ΔABC ∼ ΔDEF.   Dano: V ΔABC in ΔDEF, AB/DE = AC/DF in ∠A = ∠D. Dokaz: ΔABC ~ ΔDEF Konstrukcija: Draw PQ tako, da DP = AB in DQ = AC. Dokaz: AB DE = AC DF DP DE = DQ DF DE DP = DF DQ (Ob vzajemnem) DP + PE DP = DQ + QF DQ DP DP + PE DP = DQ DQ + QF DQ 1 + PE DP = 1 + QF DQ PE DP = QF DQ DP PE = DQ QF PQ ∥ EF (Po konverzaciji osnovne proporcijale teorem) ∠P = ∠E, ∠Q = ∠F In ΔDPQ and ΔDEF, Hence ∠P = ∠E and ∠Q = ∠F ∴ ΔDPQ ~ ΔDEF (AA similarity criterion) ..... (1) V ΔABC in ΔDPQ, AB = DP, AC = DQ, ∠A = ∠D ΔABC ≅ ΔDPQ (By SAS axiom) ΔABC ~ ΔDPQ .... (2) Iz (1) in (2), ΔABC ~ ΔDEF AA kriterij podobnosti: Ko sta dva ustrezna kota dveh trikotnika enaka, sta si dva trikotnika podobna. To se imenuje merilo podobnosti AA.   - Zadnjič posodobljeno na Aug. 13, 2018 by Teachoo Subscribe to our Youtube Channel - Transcript Theorem 6.4 (SSS Criteria) : If in two triangles, sides of one triangle are proportional to (i.e., the same ratio of) the sides of the other triangle, then their corresponding angles are equal and so the two triangle are similar. Glede na: trikotnik ΔABC in ΔDEF, tako da JE AB/DE = BC/EF = CA/FD Dokazati: ∠A = ∠D, ∠B = ∠E, ∠C = ∠F i ΔABC ~ ΔDEF Construction: Draw P and Q on DE & DF such that DP = AB and DQ = AC respectively and join PQ. Dokaz: Dano AB/DE = CA/DF In DP = AB, DQ = AC DP/DE = DQ/DF DE/DP = DF/DQ Odštevanje 1 na obeh straneh DE/DP – 1 = DF/DQ – 1 (DE − DP)/DP = (DF − PE/DP = QF/DQ DP/PE = DQ/QF Z uporabo Teorma 6.2 : Če črta deli kateri koli dve strani trikotnika v istem razmerju, je črta vzporedna s tretjo stranjo. ∴ PQ ∥ EF. Now, For lines PQ & EF, with transversal PE ∠ P = ∠ E For lines PQ & EF, with transversal QF ∠ Q = ∠ F In ΔDPQ and ΔDEF ∠P = ∠E ∠Q = ∠F ⇒ ΔDPQ ~ ΔDEF ∴ $DP/DE = DQ/DF = PQ/EF$ Also, $AB/DE = BC/EF = CA/FD$ & AB = DP & CA = QD Thus, $DP/DE = BC/EF = DQ/FD$ From (2) and (3) □ □$C/EF = PQ/EF$ ∴ BC = PQ In ΔABC and ΔDPQ AB = DP AC = DQ BC = PQ ⇒ ΔABC ≅ ΔDPQ ∴ ∠B = ∠P ∠C = ∠Q ∠ A = ∠ D But From (1) ∠P = ∠E and ∠Q = ∠F Therefore, ∠B = ∠P = ∠E and ∠C = ∠Q = ∠F Therefore, In Δ ABC & Δ DEF ∠B = ∠E ∠C = ∠F ∴ ΔABC ~ ΔDEF Hence Proved Page 2 Last updated at Aug. 13 , 2018 by Teachoo Naročite se na naš Youtube Channel - Transcript Theorem 6.5 (SAS Criteria) Če je en kot trikotnika enak enemu kotu drugega trikotnika in so strani, vključno s temi koti, sorazmerne, potem so trikotnici podobni. Glede na: dva trikotnika ΔABC in ΔDEF, tako da ∠A = ∠D AB /DE = AC /DF Dokazati: ΔABC ~ ΔDEF Gradbeništvo: Draw P in Q na DE & DF, tako da DP = AB in DQ = AC oziroma pridružite PQ. Dokaz: Dano AB/DE = CA/DF In DP = AB, DQ = AC DP/DE = DQ/DF DE/DP = DF/DQ Odštevanje 1 na obeh straneh DE/DP – 1 = DF/DQ – 1 (DE − DP)/DP = (DF − DQ)/DQ PE/DP = QF/DQ DP/PE = DQ/QF Using Theorem 6.2 : If a line divides any two sides of a triangle in the same ratio, A linija je paralelna s 3. ∴ PQ ∥ EF. Zdaj, Za linije PQ & EF, s transverzalno PE ∠ P = ∠ E Za linije PQ & EF, s transverzalnim QF ∠ Q = ∠ F Now, In ΔABC and ΔDPQ AB = DP ∠ A = ∠ D AC = DQ ⇒ ΔABC ≅ ΔDPQ ∴ ∠B = ∠P ∠C = ∠Q But From (1) ∠P = ∠E and ∠Q = ∠ Zato je ∠B = ∠P = ∠E i ∠C = ∠Q = ∠F Zato je u Δ ABC & Δ DEF ∠B = ∠E ∠C = ∠F ∴ ΔABC ~ ΔDEF Zato dokazano dokazano

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