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| **Unit 2 Test Part 1 Study Guide** | **Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ S \_\_\_\_\_** |
| 1. Which theorems or rule are used to prove that two triangles are congruent? |
| 2. Consider the triangles shown. Which rule, if any, can used to prove triangle congruency? |
| 3. If $m∠1=x+7, m∠2=2\left(x+2\right),$ and $m∠4=2(x+13)$ in the diagram below, find $m∠4$.  |
| 4. In the diagram below $m∠ 2=5\left(x+1\right)$,$ m∠3=40°$, and $m∠4=3(x+5)$. Find x and the measure of each angle. |
| **5.** Find $m∠3$ if $m∠1=3x+1$ and $m∠2=2(x+7)$.  | **6.** Find m<1 if m<2 = 5x and m<3 = 6x – 7. |

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| 7. $∆PQR$ and $∆STU$ are congruent triangles. Using this information, list the corresponding sides and corresponding angles.  |
| 8. For ΔEFG and ΔMNP, it is known that $\overbar{EG}≅\overbar{MP}$, <G<P, and $\overbar{FG}≅\overbar{NP}$. Determine if the triangles are congruent, and if so, by which type of congruency.1. SSS c. ASA
2. SAS D. It cannot be determined if the triangles are congruent.
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| 9. In this diagram, $\overbar{CD}$ is the perpendicular bisector of $\overbar{AB}.$ The two-column proof shows that $\overbar{AC}$ is congruent to $\overbar{BC}$. Fill in the missing pieces of the proof.

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| **Step** | **Statement**  | **Reason** |
| 1 | $\overbar{CD}$ is the perpendicular bisector of $\overbar{AB}$ | Given |
| 2 | $$\overbar{AD}≅\overbar{BD}$$ | Definition of bisector |
| 3 | $$\overbar{CD}≅\overbar{CD}$$ |  |
| 4 |  | Definition of perpendicular lines |
| 5 | $$∠ADC≅∠BDC$$ | All right angles are congruent |
| 6 | $$∆ADC≅∆BDC$$ |  |
| 7 | $$\overbar{AC}≅\overbar{BC}$$ |  |

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| **10. Given:** $\overbar{NO}∥\overbar{MP}$ and $\overbar{MN}∥\overbar{OP} $ **Prove:** $\overbar{MN}≅\overbar{OP}$

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| **Steps** | **Statements** | **Reasons** |
| 1 | $\overbar{NO}∥\overbar{MP}$ and $\overbar{MN}∥\overbar{OP}$ |  |
| 2 | $$∠MNP≅∠OPN$$ |  |
| 3 | $$∠NPM≅∠ONP$$ |  |
| 4 | $$\overbar{NP}≅\overbar{NP}$$ |  |
| 5 |  |  |
| 6 |  |  |

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| **11. Given:** E is the midpoint of $\overbar{AC} and \overbar{DB}$ **Prove:** $∆ABE≅∆CED$

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| **Steps** | **Statements** | **Reasons** |
| 1 |  | Given |
| 2 | $$\overbar{AE}≅\overbar{EC}$$ |  |
| 3 |  |  |
| 4 | $$∠AEB≅∠CED$$ |  |
| 5 |  |  |

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| **12.** $∆DEF$ and $∆TUV$ are congruent triangles. Which statement is known to be true? a. $\overbar{DE}≅\overbar{TU}$ c. $\overbar{DF}≅\overbar{UV}$   b. $\overbar{DF}≅\overbar{TU}$ d. $\overbar{DE}≅\overbar{TV}$ |
| 13. For $∆ABC$ and $∆DEF$, the following is given: $∠C≅∠F$, $\overbar{AB}≅\overbar{DE}$, and $\overbar{BC}≅\overbar{EF}$. By which triangle congruence statement can it be concluded that the triangles are congruent?a. SSS c. ASAb. SAS d. It cannot be determined if the triangles are congruent. |
| 14. ΔUVW and ΔXYZ are congruent triangles. Which statement is known to be true?1. <U  <V c. <V <X
2. <W <X d. <V <Y
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|  15. Name all angles for each description.Corresponding\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Alternate Interior\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Alternate Exterior\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Vertical\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Same side interior\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 16. Identify all angle measures. |

**Congruent Triangles**

17. Determine whether each pair of triangles is congruent. If so, write a congruence statement, and explain why the triangles are congruent.

 

18. For ∆ABC and ∆DEF the following is given: $∠A≅∠D, ∠B≅∠E , \overbar{AB}≅\overbar{DE}$. Sketch a picture to determine if the two triangles can be proven congruent. If so, create a two column proof.

**Theorems about Lines and Angles**

19. Name the relationship and then find the missing angle measures by solving for x.

1. b.

  

 c. d.

