**Unit 5 Review - Reasoning with Geometry** NAME \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Geometric Properties**

*Solve for x.*

1. 2. 3. 

**Proofs with Lines and Triangles**

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| 4. Given: a || b and c || d Prove: ∠1 ≅ ∠16 | 5. Given: C is the midpoint of $\overline{BE}$, ∠A ≅ ∠D Prove: △ABC ≅ △DEC |
| 6. Given: $\overline{BC}$ ≅ $\overline{DA}$, $\overline{BC}$ || $\overline{DA}$ Prove: △ABC ≅ △CDA | 7. Given: $\overline{BD} ⊥ \overline{AC}$, $\overline{BA}$ ≅ $\overline{BC}$ Prove: △BAD ≅ △BCD |

**Properties of Parallelograms**

*Solve for x.*



8. 9.

10. 11. $BD=8x+4$ and $BE=22$

**Proofs with Parallelograms**

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| 12. Given: ABCD is a parallelogram Prove: △DEA ≅ △BEC

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| Statement: | Reason: |
| 1.2. $\overline{DA}$ ≅ $\overline{CB}$3. ∠DAC ≅ ∠BCA4.5. △DEA ≅ △BEC | 1. Given2.3.4. Vertical angles5. |

 | 13. Given: ABCD is a parallelogram, $\overline{AR}$ ≅ $\overline{CS}$ Prove: △ARD ≅ △CSB

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| Statement: | Reason: |
| 1. 2. $\overline{AD}≅ \overline{CB}$3. ∠DAB ≅ ∠BCD4. △ARD ≅ △CSB | 1. Given2. 3. 4.  |

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| 14. Given: ABCD is a parallelogram Prove: ∠DAC ≅ ∠BCA

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| Statement: | Reason: |
| 1. ABCD is a parallelogram2. $\overline{AD}$ ≅ $\overline{BC}$3. 4.5. △DAC ≅ △BCA6. ∠DAC ≅ ∠BCA | 1. 2.3. Opposite sides of parallelogram are congruent.4. Reflexive property5. 6. |

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**Properties of Quadrilaterals**

*Solve for x (and y, if needed).*

15. QTSR is a trapezoid. 16. KMNJ is a rectangle. $KN=3x+14$ and $JM=38$



17. ABCD is a rhombus. 18. ABCD is a kite.



19. Figure is a trapezoid.



**Proofs with Quadrilaterals**

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| 20. Given: ABCD is an isosceles trapezoid Prove: △ADC ≅ △BCD

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| Statement: | Reason: |
| 1.2. ∠ADC ≅ ∠BCD3. $\overline{DC}$ ≅ $\overline{DC}$4. 5. △ADC ≅ △BCD | 1. Given2.3.4. Legs of an isosceles trapezoid are congruent5.  |

 | 21. Given: ABCD is a rectangle Prove: △ADE ≅ △BCE

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| Statement:  | Reason |
| 1. 2. $\overline{AD}$ ≅ $\overline{BC}$ 3. $\overline{AB}$ || $\overline{DC}$ 4. 5. ∠AED ≅ ∠BEC6. △ADE ≅ △BCE | 1. Given2. 3. 4. Alternate interior angles5. 6. |

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| 22. Given: ABCD is a rhombus Prove: △DEC ≅ △BEC

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| Statement: | Reason: |
| 1. 2. $\overline{DC}$≅ $\overline{BC}$3. $\overline{ED}$ ≅ $\overline{BE}$4. 5. △DEC ≅ △BEC | 1. Given2. 3. 4. Diagonals of a rhombus are perpendicular5.  |

 | 23. Given: $\overline{YX}$ ≅ $\overline{WX}$, $\overline{ZX}$ bisects ∠YXW Prove: $\overline{YO}$ ≅ $\overline{WO}$

|  |  |
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| Statement: | Reason |
| 1. $\overline{YX}$ ≅ $\overline{WX}$, $\overline{ZX}$ bisects ∠YXW2.3. $\overline{XO}$ ≅ $\overline{XO}$4. △YXO ≅ △WXO5. $\overline{YO}$ ≅ $\overline{WO}$ | 1. 2. Definition of bisect3.4. 5. |

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