Unit 4 Study Guide

Distance formula: $d=\sqrt{\left(x\_{2}-x\_{1}\right)^{2}+\left(y\_{2}-y\_{1}\right)^{2}}$

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| 1A. Determine the distance between points $(-7, -3)$ & $(6, -12)$. | 1B. Determine the distance between points $(11, -9)$ & $(-7, 5)$. | 1C. Determine the distance between points $(-1, -15)$ & $(6, 4)$. |

To translate is to move an entire figure a specific distance & direction by moving the endpoints and/or vertices.

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| 2A. Tim draws line segment $RS$ with coordinates of $R(3, 7)$ and $S\left(8, 1\right)$. He translates the line segment 2 units down. He names this line segment $R'S'$.1. Identify the new coordinates of $R^{'}$and $S'$.
2. Describe how a vertical translation changes the coordinates of the endpoints.

 | 2B. Caroline draws line segment $LM$ with coordinates of $L(-5, 2)$ and $M\left(1, 7\right)$. She translates the line segment 7 units right. She names this line segment $L'M'$.1. Identify the new coordinates of $L^{'}$and $M'$.
2. Describe how a horizontal translation changes the coordinates of the endpoints.

 | 2C. Daryl draws line segment $DE$ with coordinates of $D(-6, 2)$ and $E\left(-3, 4\right)$. He translates the line segment 5 units up and 4 units right. He names this line segment $D'E'$.1. Identify the new coordinates of $D^{'}$and $E'$.
2. Describe how a vertical and a horizontal translation change the coordinates of the endpoints.

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To find the midpoint, add the *x*’s and divide by 2, then add the *y*’s and divide by 2.

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| 3A. Calculate the midpoint of a line segment with the endpoints $(19, 7)$ and $(3, 15)$. | 3B. Calculate the midpoint of a line segment with the endpoints $(-7, 4)$ and $(13, 12)$. | 3C. Calculate the midpoint of a line segment with the endpoints $(5, -8)$ and $(-21, 14)$. |

Complementary means “adds to equal $90˚$”, and supplementary means “adds to equal $180˚.$”

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| 4A. The measure of angle $U$ is $47˚$.1. What is the measure of an angle that is complementary to $∠U$?
2. What is the measure of an angle that is supplementary to $∠U$?
 | 4B. The measure of angle $W$ is $36˚$.1. What is the measure of an angle that is complementary to $∠W$?
2. What is the measure of an angle that is supplementary to $∠W$?
 | 4C. The measure of angle $P$ is $71˚$.1. What is the measure of an angle that is complementary to $∠P$?
2. What is the measure of an angle that is supplementary to $∠P$?
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To bisect is to cut in half.

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| 5A. Marcos bisects angle *ABC*. He labels a point on the bisector as *D*. Angle *ABC* is 82˚. What is the measure of angles *ABD* and *DBC?* | 5B. Julie bisects angle *KLM*. She labels a point on the bisector as *N*. Angle *KLN* is 37˚. What is the measure of angle KLM*?* | 5C. Janet bisects angle *PQR*. She labels a point on the bisector as *S*. Angle *PQR* is 146˚. What is the measure of angles *PQS* and *SQR?* |

Corresponding, alternate interior, alternate exterior & vertical angles are congruent *when the lines are parallel*. Same Side interior & linear pair angles add to equal $180˚$ *when the lines are parallel*.

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| 6A. Given the figure, $m∠4=73˚$, determine the $m∠3$ and provide the theorem or postulate you used. | 6B. Given the figure, $m∠8=52˚$, determine the $m∠4$ and provide the theorem or postulate you used. | 6C. Given the figure, $m∠1=117˚$, determine the $m∠7$ and provide the theorem or postulate you used. |
| 7A. In the figure, line *a* is parallel to line *b* and $m∠1=107˚$. Determine the $m∠5$ and provide the postulate or theorems used. | 7B. In the figure, line *a* is parallel to line *b* and $m∠5=98˚$. Determine the $m∠7$ and provide the postulate or theorems used. | 7C. In the figure, line *a* is parallel to line *b* and $m∠2=84˚$. Determine the $m∠3$ and provide the postulate or theorems used. |

The two far away angles (remote interior angles) add to equal the outside angle (exterior angle).

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| 8A. Solve for *x* and find the measure of the exterior angle. | 8B. Solve for *x* and find the measure of the exterior angle. | 8C. Solve for *x* and find the measure of the exterior angle. |

The three angles of a triangle add to equal$ 180˚$.

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| 9A. Find the value of *x* and the measurement of all of the angles. | 9B. Find the value of *x* and the measurement of all of the angles. | 9C. Find the value of *x* and the measurement of all of the angles. |

To find the third side of a right triangle, use the Pythagorean theorem: $a^{2}+b^{2}=c^{2}$, where $c$ is the hypotenuse.

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| 10A. Find the measurement of the missing leg length. | 10B. Find the measurement of the missing leg length. | 10C. Find the measurement of the missing leg length. |