Unit 7 Study Guide

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| 1A. Use special triangle formulas to find the value of *b* and *c*. | 1B. Use special triangle formulas to find the value of *b* and *c*. | 1C. Use special triangle formulas to find the value of *a* and *b.* |
| 2A. Use special triangle formulas to find the value of *a* and *c*. | 2B. Use special triangle formulas to find the value of *a* and *c*. | 2C. Use special triangle formulas to find the value of *b* and *c*. |
| 3A. Find the value of *a* in reduced radical form. | 3B. Find the value of *b* in reduced radical form. | 3C. Find the value of *c* in reduced radical form. |
| 4A. Use a trigonometric ratio to determine the value of *x*. Round your answer to the nearest tenth. | 4B. Use a trigonometric ratio to determine the value of *x*. Round your answer to the nearest tenth. | 4C. Use a trigonometric ratio to determine the value of *x*. Round your answer to the nearest tenth. |
| 5A. Use a trigonometric ratio to determine the value of *x*. Round your answer to the nearest tenth. | 5B. Use a trigonometric ratio to determine the value of *x*. Round your answer to the nearest tenth.  | 5C. Use a trigonometric ratio to determine the value of *x*. Round your answer to the nearest tenth. |
| 6A. Use a trigonometric ratio to determine the value of *x*. Round your answer to the nearest tenth. | 6B. Use a trigonometric ratio to determine the value of *x*. Round your answer to the nearest tenth. | 6C. Use a trigonometric ratio to determine the value of *x*. Round your answer to the nearest tenth. |
| 7A. Estimate $m∠P$ to the nearest degree. | 7B. Estimate $m∠N $to the nearest degree. | 7C. Estimate $m∠V$ to the nearest degree. |
| 8A. Estimate $m∠A$ to the nearest degree. | 8B. Estimate $m∠V$ to the nearest degree. | 8C. Estimate $m∠T$ to the nearest degree. |
| 9A. Use $△ABC$ to answer part (a). Show your work and round answers to the nearest tenth. Area = ½abSinC**a.** Determine the area of the triangle. | 9B. Use $△ABC$ to answer part (a). Show your work and round answers to the nearest tenth. Area = ½abSinC**a.** Determine the area of the triangle. | 9C. Use $△ABC$ to answer part (a). Show your work and round answers to the nearest tenth. Area = ½abSinC**a.** Determine the area of the triangle. |
| 10A. An airplane is flying at an elevation of 2 miles. The airplane is at an angle of elevation of 43˚ from the end of the runway.a. Which ratio would you use to determine the horizontal distance between the runway and the airplane? Explain your choice. | 10B. A 5-yard cable connects the top of a flagpole to the ground. The angle of elevation of the cable is 71˚. a. Which ratio would you use to determine the height of the flagpole? Explain your choice. | 10C. A roofer leans a 15-foot ladder against a wall. The angle of elevation of the ladder is 62˚.a. Which ratio would you use to determine the distance between the base of the ladder and the wall? Explain your choice. |

Unit 7 Study Guide Answers

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| 1A. $b=4 in \& c=4\sqrt{2} in$ | 1B. $b=7\sqrt{3} cm \& c=14 cm$ | 1C. $a=9 cm \& b=9 cm$ |
| 2A. $a=3 yd \& c=6 yd$ | 2B. $a=5 mm \& c=5\sqrt{2} mm$ | 2C. $b=9\sqrt{3} ft \& c=18 ft$ |
| 3A. $a=2\sqrt{51} cm$ | 3B. $b=18\sqrt{2} in$ | 3C. $c=4\sqrt{65} ft$ |
| 4A. $33.3 in$ | 4B. $4.7 m$ | 4C. $5.0 ft$ |
| 5A. $13.9 ft$ | 5B. $17.8 yd$ | 5C. $4.5 m$ |
| 6A. $3.8 in$ | 6B. $24.6 yd$ | 6C. $14.6 cm$ |
| 7A. 48˚ | 7B. 51˚ | 7C. 75˚ |
| 8A. 10˚ | 8B. 52˚ | 8C. 41˚ |
| 9A. $19.6 cm^{2}$ | 9B. $10.4 in^{2}$ | 9C. $21.8 m^{2}$ |
| 10A. Tangent, because the opposite side to the 48˚ angle (which I choose to focus on) is given (2 miles), and I want the adjacent side. The trig ratio that uses what I have (opp) and what I want (adj) is tangent.$$tan(angle)=\frac{opp}{adj}$$ | 10B. I would use sine to determine the height of the pole, because I am going to use the given 71˚ angle, which means the only side that I cannot work with is the adjacent side (it’s unknown and I don’t want it). Both cosine and tangent need adjacent to work. Sine doesn’t. So, I’ll use sine.$$sin(angle)=\frac{opp}{hyp}$$ | 10C. Cosine uses the adjacent side, which, assuming I use 62˚ as my angle, is *x*, and the hypotenuse, which is 15. I would use cosine, because it uses the sides that I have and want, while ignoring the only side that I don’t have and don’t want (the opposite side).$$cos(angle)=\frac{adj}{hyp}$$ |