Name _____ Date _____

LESSON 7.7

Practice B

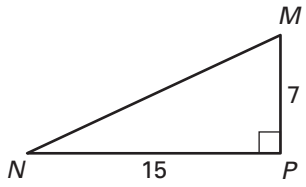
For use with pages 503–509

Use the diagram to find the indicated measurement. Round your answer to the nearest tenth.

1. MN

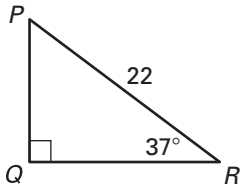
2. $m\angle M$

3. $m\angle N$



Solve the right triangle. Round decimal answers to the nearest tenth. Check that your answer is reasonable.

4.



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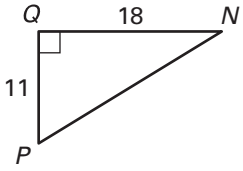

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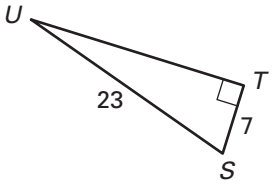

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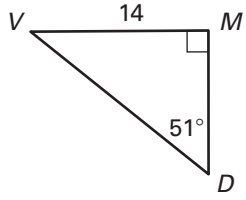

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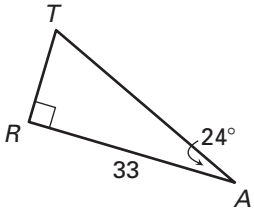

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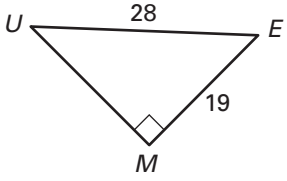

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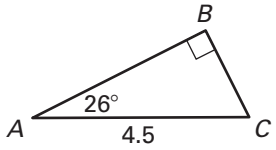
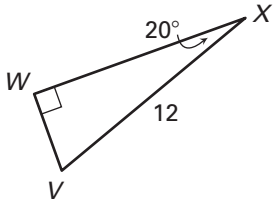
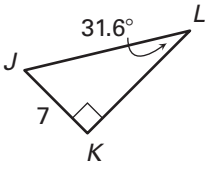


11.



12.



Let $\angle A$ be an acute angle in a right triangle. Approximate the measure of $\angle A$ to the nearest tenth of a degree.

13. $\sin A = 0.36$

14. $\tan A = 0.8$

15. $\sin A = 0.27$

16. $\cos A = 0.35$

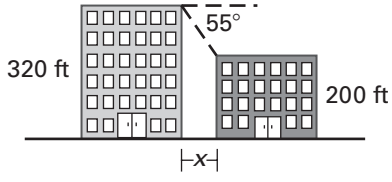
17. $\tan A = 0.42$

18. $\cos A = 0.11$

19. $\sin A = 0.94$

20. $\cos A = 0.77$

21. Office Buildings The angle of depression from the top of a 320 foot office building to the top of a 200 foot office building is 55°. How far apart are the buildings?



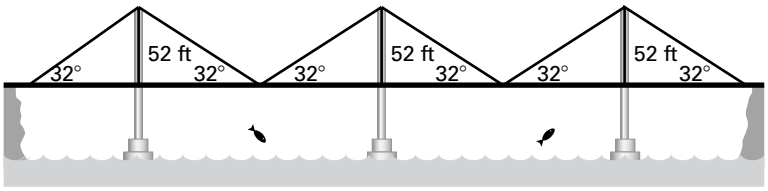
Name _____ Date _____

LESSON 7.7

Practice B *continued*

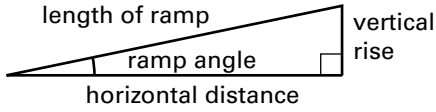
For use with pages 503–509

22. Suspension Bridge Use the diagram to find the distance across the suspension bridge.



In Exercises 23 and 24, use the following information.

Ramps The Uniform Federal Accessibility Standards specify that the ramp angle used for a wheelchair ramp must be less than or equal to 4.78°.

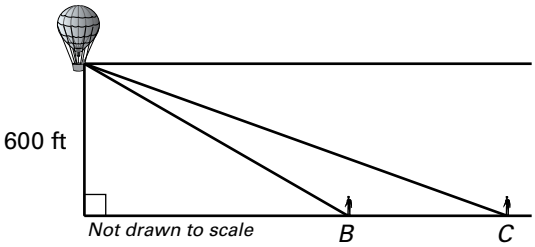


23. The length of one ramp is 16 feet. The vertical rise is 14 inches. Estimate the ramp's horizontal distance and its ramp angle. Does this ramp meet the Uniform Federal Accessibility Standards?

24. You want to build a ramp with a vertical rise of 6 inches. You want to minimize the horizontal distance taken up by the ramp. Draw a sketch showing the approximate dimensions of your ramp.

In Exercises 25–27, use the following information.

Hot Air Balloon You are in a hot air balloon that is 600 feet above the ground where you can see two people.



25. If the angle of depression from your line of sight to the person at B is 30°, how far is the person from the point on the ground below the hot air balloon?

26. If the angle of depression from your line of sight to the person at C is 20°, how far is the person from the point on the ground below the hot air balloon?

27. How far apart are the two people?

Focus On 7.6

Practice

1. $\cot D = \frac{24}{7} \approx 3.4286$; $\sec D = \frac{25}{24} \approx 1.0417$; $\csc D = \frac{25}{7} \approx 3.5714$

2. $\cot D = \frac{9}{40} = 0.225$; $\sec D = \frac{41}{9} \approx 4.5556$; $\csc D = \frac{41}{40} = 1.025$

3. $\cot D = \frac{60}{11} \approx 5.4545$; $\sec D = \frac{61}{60} \approx 1.0167$; $\csc D = \frac{61}{11} \approx 5.5455$

4. $\cot D = \frac{20}{21} \approx 0.9524$; $\sec D = \frac{29}{20} = 1.45$; $\csc D = \frac{29}{21} \approx 1.3810$

5. $\cot D = \frac{72}{65} \approx 1.1077$; $\sec D = \frac{97}{72} \approx 1.3472$; $\csc D = \frac{97}{65} \approx 1.4923$

6. $\cot D = \frac{80}{39} \approx 2.0513$; $\sec D = \frac{89}{80} = 1.1125$; $\csc D = \frac{89}{39} \approx 2.2821$

7. 9.7 **8.** 13.5 **9.** 21.8

10. approximately 215.58 ft **11.** 37 m

Review for Mastery

1. $\cot D = \frac{4}{3} \approx 1.3333$; $\sec D = \frac{5}{4} \approx 1.25$; $\csc D = \frac{5}{3} \approx 1.6667$

2. $\cot D = \frac{36}{77} \approx 0.4675$; $\sec D = \frac{85}{36} \approx 2.3611$; $\csc D = \frac{85}{77} \approx 1.1039$

3. $\cot D = \frac{48}{55} \approx 0.8727$; $\sec D = \frac{73}{48} \approx 1.5208$; $\csc D = \frac{73}{55} \approx 1.3273$

4. 17.8 **5.** 7.0 **6.** 13.3

Lesson 7.7

Practice Level A

1. A **2.** B **3.** E **4.** B **5.** A **6.** F

7. $m\angle A = 56.3°$ **8.** $m\angle A = 53.7°$

9. $m\angle A = 32.6°$ **10.** $m\angle A = 51.3°$

11. $m\angle A = 39.5°$ **12.** $m\angle A = 65.9°$

13. $m\angle P = 45°$, $PQ \approx 8.5$, $QR \approx 8.5$

14. $m\angle P \approx 54.8°$, $m\angle N \approx 35.2°$, $PN \approx 20.8$

15. $TU \approx 14.1$, $TS \approx 5.1$, $m\angle U = 20°$

16. $m\angle V = 40°$, $DM \approx 17.6$, $DV \approx 27.4$

17. $m\angle T \approx 61.9°$, $m\angle A \approx 28.1°$, $AT = 34$

18. $UM \approx 9.9$, $m\angle U \approx 56.4°$, $m\angle E \approx 33.6°$

19. $m\angle A \approx 26.7°$ **20.** $m\angle A \approx 42.0°$

21. $m\angle A \approx 49.5°$ **22.** $m\angle A \approx 71.3°$

23. $m\angle A \approx 79.1°$ **24.** $m\angle A \approx 76.1°$

25. $m\angle A \approx 8.6°$ **26.** $m\angle A \approx 48.7°$ **27.** B

28. 78.5° **29.** about 65° **30.** 111 ft

Practice Level B

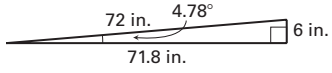
1. 16.6 **2.** 65.0° **3.** 25.0 **4.** $m\angle P = 53°$, $PQ \approx 13.2$, $QR \approx 17.6$ **5.** $m\angle P \approx 58.6°$, $m\angle N \approx 31.4°$, $PN \approx 21.1$ **6.** $TU \approx 21.9$, $m\angle S = 72.3°$, $m\angle U = 17.7°$ **7.** $m\angle V = 39°$, $DM \approx 11.3$, $DV \approx 18.0$ **8.** $m\angle T = 66°$, $TR \approx 14.7$, $AT \approx 36.1$ **9.** $UM \approx 20.6$, $m\angle U \approx 42.7°$, $m\angle E \approx 47.3°$ **10.** $m\angle C = 64°$, $AB \approx 4.0$, $BC \approx 2.0$ **11.** $m\angle V = 70°$, $VW \approx 4.1$, $WX \approx 11.3$ **12.** $m\angle J = 58.4°$, $JL \approx 13.4$, $LK \approx 11.4$ **13.** 21.1° **14.** 38.7°

15. 15.7° **16.** 69.5° **17.** 22.8° **18.** 83.7°

19. 70.1° **20.** 39.6° **21.** about 84.02 ft

22. about 499.30 ft **23.** about 191.5 in. or about 15 ft 11.5 in.; about 4.2°; Yes, the angle is less than 4.78°.

24.



25. about 1039.2 ft **26.** about 1648.5 ft

27. about 609.3 ft

Practice Level C

1. $m\angle A = 51.9°$ **2.** $m\angle A = 74.9°$

3. $m\angle A = 11.5°$

4. $m\angle P = 57°$, $PQ \approx 9.8$, $QR \approx 15.1$

5. $m\angle P \approx 59.7°$, $m\angle N \approx 30.3°$, $PN \approx 13.9$

6. $JL \approx 10.2$, $LK \approx 4.7$, $m\angle J = 27.7°$

7. $m\angle V = 73°$, $WX \approx 32.5$, $WV \approx 9.9$

8. $m\angle C = 64.5°$, $AB \approx 3.7$, $BC \approx 1.8$

9. $UM \approx 17.2$, $m\angle U \approx 17.1°$, $m\angle E \approx 72.9°$

10. $TR \approx 2.2$, $RA \approx 6.1$, $m\angle T = 70°$