

# Key

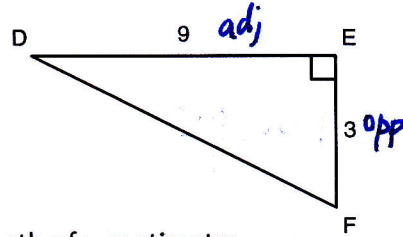
## Chapter 3 Review

1. Determine the measure of  $\angle D$  to the nearest tenth of a degree.

1. A

- (A)  $18.4^\circ$
- (B)  $19.5^\circ$
- (C)  $70.5^\circ$
- (D)  $71.6^\circ$

$$\tan \angle D = \frac{3}{9}$$

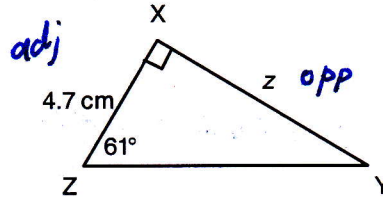


2. Determine the length of side  $z$  to the nearest tenth of a centimetre.

2. D

- (A) 9.7 cm
- (B) 2.6 cm
- (C) 5.4 cm
- (D) 8.5 cm

$$\tan 61 = \frac{z}{4.7}$$

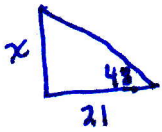


3. A flagpole casts a shadow that is 21 m long when the angle between the sun's rays and the ground is  $48^\circ$ . Determine the height of the flagpole, to the nearest metre.

3. D

- A) 19 m
- B) 16 m
- C) 14 m
- D) 23 m

$$\tan 48 = \frac{x}{21}$$



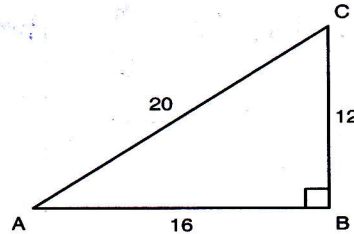
4. Determine  $\sin A$  and  $\cos A$  to the nearest tenth.

4. D

- (A)  $\sin A = 1.7$ ;  $\cos A = 0.8$
- (B)  $\sin A = 0.6$ ;  $\cos A = 1.3$
- (C)  $\sin A = 0.8$ ;  $\cos A = 0.6$
- (D)  $\sin A = 0.6$ ;  $\cos A = 0.8$

$$\sin A = \frac{12}{20}$$

$$\cos A = \frac{16}{20}$$

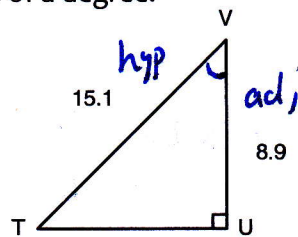


5. Determine the measure of  $\angle V$  to the nearest tenth of a degree.

5. D

- (A) 59.5
- (B) 36.1
- (C) 30.5
- (D) 53.9

$$\cos V = \frac{8.9}{15.1}$$

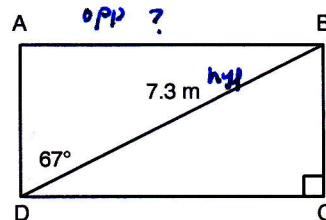


6. Calculate the length of this rectangle to the nearest tenth of a metre.

6. C

- (A) 7.9 m
- (B) 2.9 m
- (C) 6.7 m
- (D) 3.1 m

$$\sin 67 = \frac{x}{7.3}$$

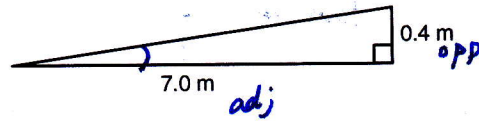


7. An architect draws this diagram of a wheelchair entrance ramp for a building. Determine the angle of inclination of the ramp to the nearest tenth of a degree.

7. C

- (A) 86.7 m  
 (B) 29.7 m  
 (C) 3.3 m  
 (D) 5.1 m

$$\tan \frac{0.4}{7.0}$$

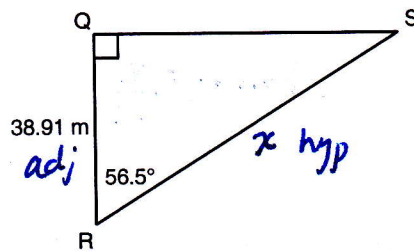


8. A surveyor made the measurements shown in the diagram. Determine the distance from R to S, to the nearest hundredth of a metre.

8. B

- (A) 46.66 m  
 (B) 70.50 m  
 (C) 25.75 m  
 (D) 58.79 m

$$\cos 56.5 = \frac{38.91}{x}$$



9. Determine the length of QR to the nearest metre.

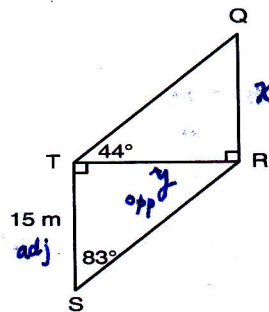
9. D

- (A) 85 m  
 (B) 170 m  
 (C) 127 m  
 (D) 118 m

$$\tan 83 = \frac{y}{15}$$

$$y = 122$$

$$\tan 44 = \frac{x}{122}$$

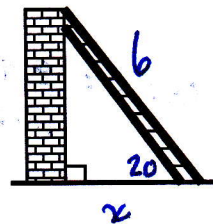


10. A ladder which is 6 m in length is resting against a house. The ladder makes an angle of  $20^\circ$  with the ground. How far from the base of the house is the ladder touching the ground?

10. C

- (A) 2.1 m  
 (B) 2.2 m  
 (C) 5.6 m  
 (D) 17.5 m

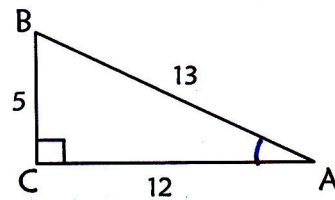
$$\cos 20 = \frac{x}{6}$$



11. Which of the following is the correct ratio for  $\cos A$ ?

11. C

- (A)  $\frac{5}{12}$       (B)  $\frac{5}{13}$   
 (C)  $\frac{12}{13}$       (D)  $\frac{13}{12}$



$$\cos A = \frac{12}{13}$$

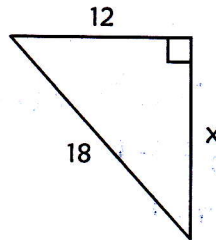
12. Determine the value of x.

- (A) 6
- (B) 21.6
- (C) 3.5
- (D) 13.4

$$18^2 - 12^2 = x^2$$

$$x^2 = 180$$

$$x = 13.4$$

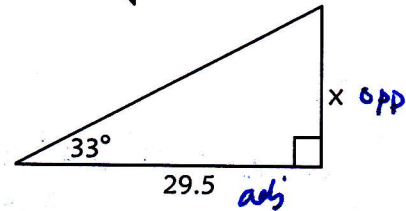


12. D

13. What is the value of x in the diagram below?

- (A) 45.4
- (B) 24.7
- (C) 19.2
- (D) 16.1

$$\tan 33 = \frac{x}{29.5}$$

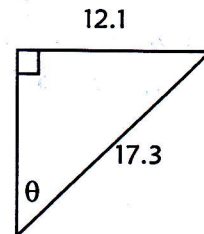


13. C

14. What is the value of  $\theta$  in the diagram below?

- (A)  $35^\circ$
- (B)  $46^\circ$
- (C)  $0.77^\circ$
- (D)  $44^\circ$

$$\sin \theta = \frac{12.1}{17.3}$$



14. D

15. If a triangle has sides of lengths a, b and c, then according to the Law of Sines, what does a equal?

- (A)  $\frac{c \sin C}{\sin A}$
- (B)  $\frac{c \sin A}{\sin C}$
- (C)  $\frac{c \sin B}{\sin A}$
- (D)  $\frac{\sin C}{a \sin A}$

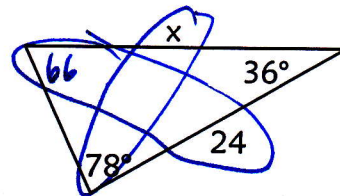
$$\frac{a}{\sin A} = \frac{c}{\sin C}$$

15. B

16. Find the value of x in the diagram below.

- (A) 25.7
- (B) 39.9
- (C) 12.2
- (D) 24

$$\frac{x}{\sin 78} = \frac{24}{\sin 66}$$

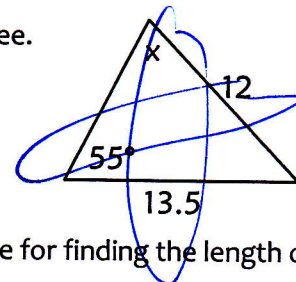


16. A

17. Find the measure of the missing angle to the nearest degree.

- (A)  $67^\circ$
- (B)  $23^\circ$
- (C)  $50^\circ$
- (D)  $35^\circ$

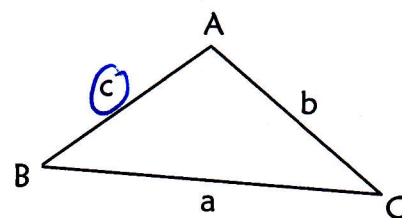
$$\frac{\sin x}{13.5} = \frac{\sin 55}{12}$$



17. A

18. Which of the following would be the correct formula to use for finding the length of AB?

- (A)  $b^2 = a^2 + c^2 - 2ac \cos B$
- (B)  $c^2 = a^2 + b^2 + 2ab \cos C$
- (C)  $c^2 = a^2 + b^2 - 2ab \cos C$
- (D)  $a^2 = b^2 + c^2 - 2bc \cos A$



18. C

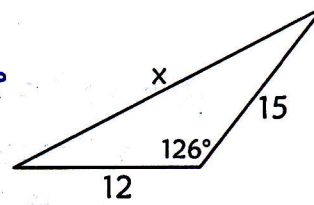
19. Find the value of  $x$  in the diagram below.

- (A) 12.5  
(B) 24.1  
(C) 19.2  
(D) 8.8

$$x^2 = 12^2 + 15^2 - 2(12)(15)\cos 126$$

$$x^2 = 580.6$$

$$x = 24.1$$



19. C

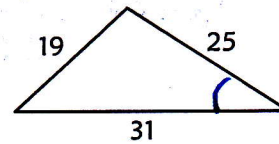
20. Find the measure of the **smallest** angle in the diagram below.

- (A)  $88^\circ$   
(B)  $54^\circ$   
(C)  $38^\circ$   
(D)  $36^\circ$

$$\cos x = \frac{31^2 + 25^2 - 19^2}{2(31)(25)}$$

$$\cos x = 0.7963$$

$$x = 38^\circ$$



20. C

21. The straight-line distance between Kelly's Island and Bell Island is 4.6 km. Bonita and John want to take their boat from Kelly's Island to the tip of Little Bell Island. How far will they travel in total? Give your answer to the nearest tenth of a metre.

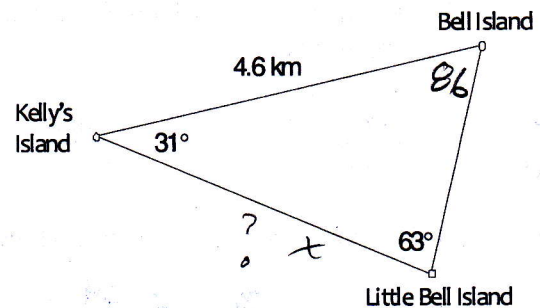
(4 marks)

$$\frac{x}{\sin 86} = \frac{4.6}{\sin 63}$$

$$x = 5.15$$

$$\text{Total} = 9.75 \text{ km}$$

$$= 9.8 \text{ km}$$



22. Find the missing value of  $x$  in the following triangle to the nearest meter.

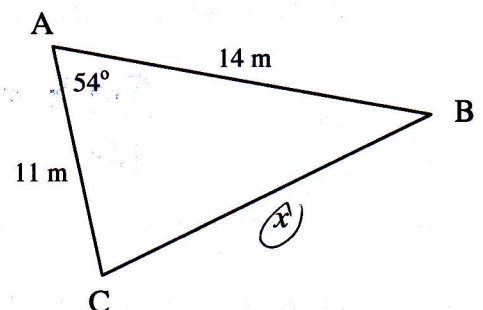
(4 marks)

$$x^2 = 11^2 + 14^2 - 2(11)(14)\cos 54$$

$$x^2 = 135.96$$

$$x = 11.7$$

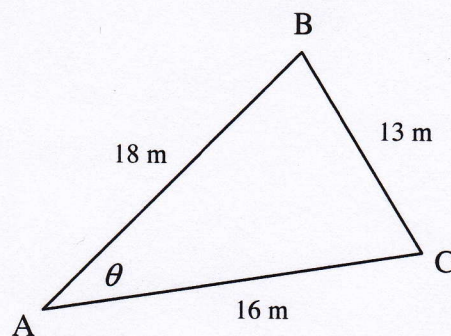
$$= 12 \text{ m}$$



23. Find the measure of  $\theta$  to the nearest degree in the following triangle.

(4 marks)

$$\begin{aligned} \cos \theta &= \frac{18^2 + 16^2 - 13^2}{2(18)(16)} \\ &= 0.7135 \\ \theta &= 44.48 \\ &\rightarrow 44^\circ \end{aligned}$$

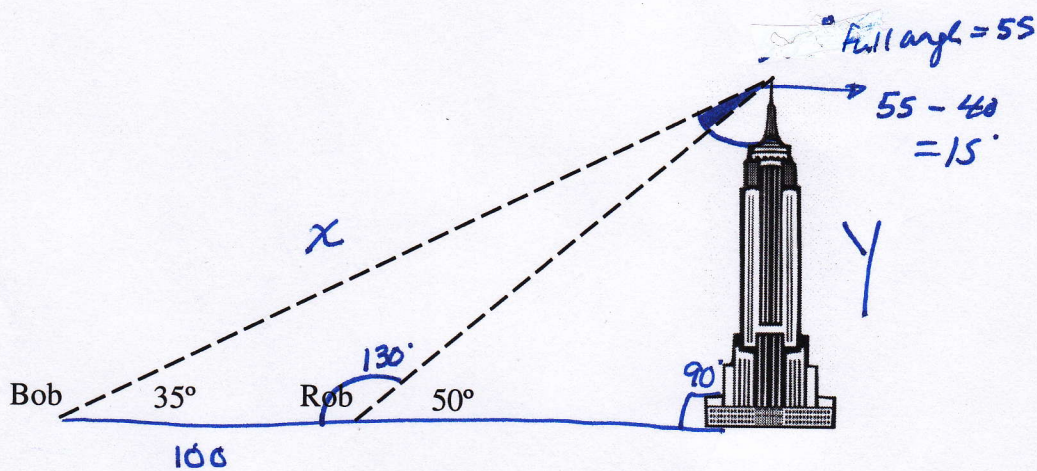


24. For  $\triangle BTY$ ,  $\angle B = 55^\circ$ ,  $b = 15$ , and  $y = 18$ . Sketch the triangle and find  $\angle T$  to the nearest degree.

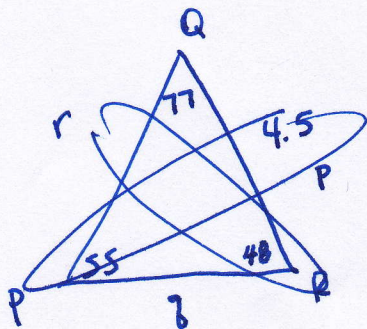
25. Bob and Rob are looking at the top of a building. If Bob and Rob are 100 m apart, how tall is the building? Round your answer to the nearest tenth of a metre.

$$\begin{aligned} \frac{x}{\sin 130} &= \frac{100}{\sin 15} \\ x &= 296.0 \text{ m} \end{aligned}$$

$$\begin{aligned} \sin 35 &= \frac{y}{296.0} \\ y &= 169.8 \end{aligned}$$



26. In triangle PQR,  $\angle P = 55^\circ$ ,  $\angle Q = 77^\circ$ , and  $p = 4.5$  cm. Solve the triangle.



$$\frac{r}{\sin 48} = \frac{4.5}{\sin 55}$$

$$\boxed{r = 4.08}$$

$$\boxed{\angle R = 48^\circ}$$

$$\frac{q}{\sin 9} = \frac{p}{\sin P}$$

$$q = \frac{(55)(\sin 77)}{4.5}$$

$$\boxed{q = 11.9}$$