

## Section 4.1: Introduction to Trigonometry

### Answers

1. 12

2.  $\sqrt{3}$

3.  $2\sqrt{10}$

4. 17

5.  $\sqrt{13}$

6. 1

7.  $2\sqrt{6}$

8. 10

9.  $5\sqrt{2}$

10.  $\sqrt{14}$

11.  $c = \sqrt{2}$ , so  $\sin A = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$ ,  $\cos A = \text{same}$ ,  $\tan A = \frac{1}{1} = 1$

12.  $b = 2$ , so  $\sin A = \frac{\sqrt{3}}{2}$ ,  $\cos A = \frac{1}{2}$ ,  $\tan A = \sqrt{3}$

13.  $a = 2\sqrt{5}$ , so  $\sin A = \frac{\sqrt{5}}{3}$ ,  $\cos A = \frac{2}{3}$ ,  $\tan A = \frac{\sqrt{5}}{2}$

14.  $c = \sqrt{41}$ , so  $\sin A = \frac{4\sqrt{41}}{41}$ ,  $\cos A = \frac{5\sqrt{41}}{41}$ ,  $\tan A = \frac{4}{5}$

15. 0.8988

16. 0.8192

17. 0.5206

18. 78.8070

19. 0.9972

20. 0.0750

21.  $\theta = 20.49^\circ$

22.  $\theta = 8.11^\circ$

23.  $\theta = 89.44^\circ$

24.  $\theta = \text{undefined}$

25.  $\theta = \text{undefined}$

26.  $\theta = 57.99^\circ$

27.  $45^\circ$

28. they are equal

$$29. \sin A = \frac{a}{c}, \quad \cos A = \frac{\sqrt{c^2 - a^2}}{c}, \quad \tan A = \frac{a}{\sqrt{c^2 - a^2}} = \frac{a\sqrt{c^2 - a^2}}{c^2 - a^2}$$