McKeague/Turner Trigonometry 8e - Chapter 2 Form A

Multiple Choice
Identify the choice that best completes the statement or answers the question.

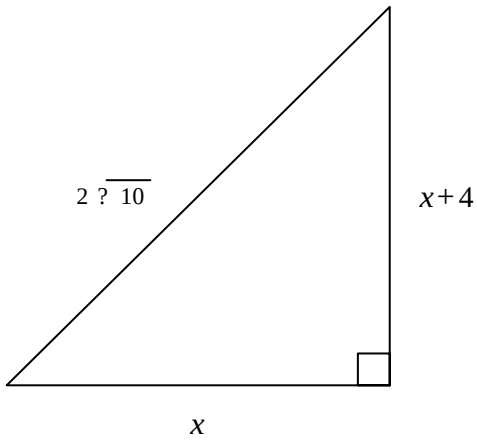
____ 1. Find the complement and supplement of the angle 55°.

a. Complement: 45°
Supplement: 145°
b. Complement: 125°
Supplement: 35°
c. Complement: 145°
Supplement: 235°
d. Complement: 125°
Supplement: 305°
e. Complement: 35°
Supplement: 125°

____ 2. Let triangle *ABC* be a right triangle with $C = 90°$. If $c = 19$ and $a = 6$, find *b*.

a. $\sqrt{13}$
b. $\sqrt{397}$
c. 13
d. $5\sqrt{13}$
e. None of the above.

____ 3. Solve for *x* in the following right triangle:



a. 3
b. 2
c. 1
d. 4
e. 5

____ 4. Find the lengths of the shortest two sides of a $30° - 60° - 90°$ triangle, if the length of the longest side is 16.

a. $4, \frac{8}{\sqrt{3}}$

b. $4, 4\sqrt{3}$

c. $8, 8\sqrt{3}$

d. $4, \frac{4}{\sqrt{3}}$

e. $8, \frac{8}{\sqrt{3}}$

____ 5. Find the length of the shorter sides of a $45° - 45° - 90°$ triangle if the length of the hypotenuse is 21.

a. $\frac{21\sqrt{2}}{2}$

b. $\frac{21\sqrt{2}}{4}$

c. $\frac{21}{2}$

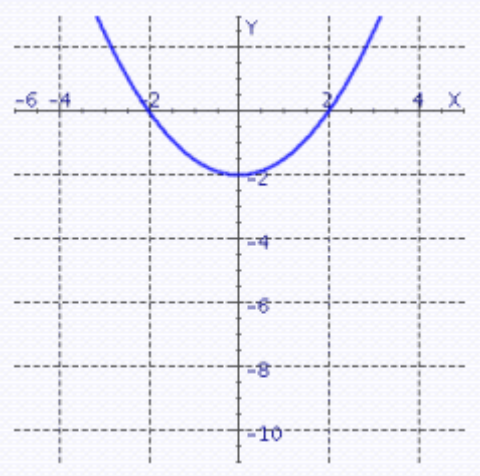
d. $\frac{21\sqrt{3}}{3}$

e. $\frac{21\sqrt{3}}{2}$

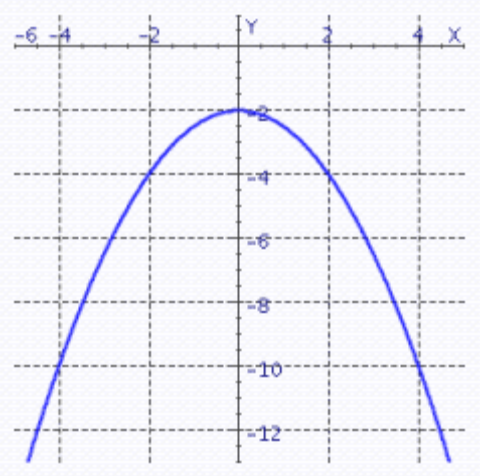
____ 6. Graph the following parabola.

$$f(x) = -\frac{1}{2}x^2 - 2$$

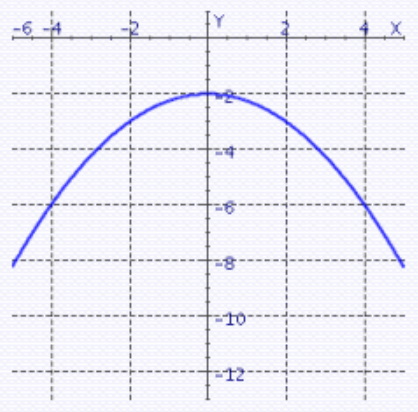
a.



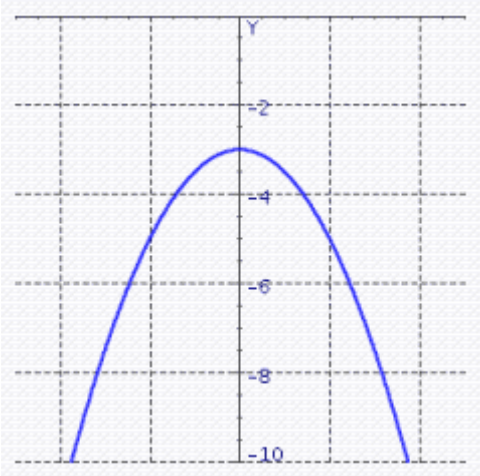
b.



c.



d.



e. None of the above.

____ 7. Find the distance between the two points $(-5, 8)$ and $(19, 53)$.
a. 102
b. 51
c. 48
d. 153
e. 99

____ 8. Determine two coterminal angles (one positive and one negative) for $\theta = -503°$.
a. $127°, -233°$
b. $307°, -413°$
c. $127°, -323°$
d. $217°, -143°$
e. $217°, -323°$

____ 9. Determine which of the following points is located in quadrant 4.

a. $(-3, 7)$
b. $(3, -7)$
c. $(-7, 3)$
d. $(-7, -3)$
e. $(7, 3)$

____ 10. Which of the following points lies on the unit circle?

a. $\left(\frac{-7}{11}, \frac{4\sqrt{2}}{11}\right)$
b. $\left(\frac{5}{9}, \frac{-4\sqrt{2}}{9}\right)$
c. $\left(\frac{-7}{9}, \frac{-4\sqrt{2}}{9}\right)$
d. $\left(\frac{-5}{13}, \frac{-4\sqrt{2}}{13}\right)$
e. None of the above.

____ 11. Given $\sin 30° = \frac{1}{2}$ and $\cos 30° = \frac{\sqrt{3}}{2}$, determine the following:

$\csc 30°$

a. $\csc 30° = \frac{\sqrt{3}}{3}$

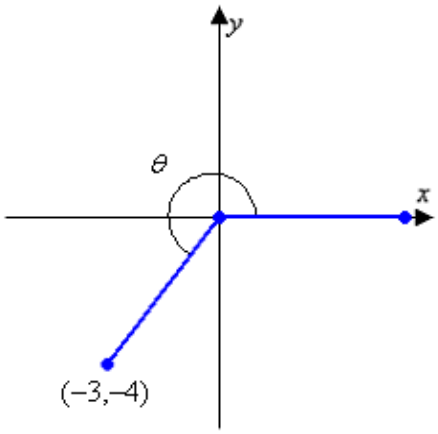
b. $\csc 30° = \frac{\sqrt{2}}{2}$

c. $\csc 30° = \sqrt{3}$

d. $\csc 30° = 2$

e. undefined

____ 12. Given the figure below, determine the value of $\sin \theta$.



a. $\sin \theta = -\frac{3}{5}$

b. $\sin \theta = \frac{4}{3}$

c. $\sin \theta = -\frac{4}{5}$

d. $\sin \theta = -\frac{3}{4}$

e. $\sin \theta = \frac{3}{4}$

____ 13. The point $(3,4)$ is on the terminal side of an angle in standard position. Determine the exact value of $\cos\theta$.

a. $\cos\theta = -\frac{5}{3}$

b. $\cos\theta = \frac{4}{3}$

c. $\cos\theta = \frac{3}{4}$

d. $\cos\theta = -\frac{4}{3}$

e. $\cos\theta = \frac{3}{5}$

____ 14. Indicate the two quadrants θ could terminate in if $\tan\theta = -\frac{13}{23}$.

a. Quadrants II and III
b. Quadrants I and III
c. Quadrants I and IV
d. Quadrants II and IV
e. Quadrants III and IV

____ 15. Evaluate $\sin 300°$.

a. $\frac{-1}{2}$

b. $\frac{1}{2}$

c. $\frac{\sqrt{3}}{2}$

d. $\frac{-\sqrt{2}}{2}$

e. $\frac{-\sqrt{3}}{2}$

____ 16. Find $\sin\theta$ if $\csc\theta = \frac{-23}{19}$.

a. $\frac{4}{23}$

b. $\frac{4}{19}$

c. $\frac{-4}{23}$

d. $\frac{19}{23}$

e. $\frac{-19}{23}$

____ 17. Find $\tan\theta$ if $\sec\theta = \frac{\sqrt{170}}{7}$ and $\csc\theta = \frac{\sqrt{170}}{11}$.

a. $-\frac{7}{11}$

b. $\frac{170}{77}$

c. $\frac{7}{11}$

d. $\frac{77}{170}$

e. $\frac{11}{7}$

____ 18. If $\sin\theta = \frac{-6}{\sqrt{85}}$ and θ terminates in QIII, find $\cos\theta$.

a. $\frac{-6}{7}$

b. $\frac{-7}{\sqrt{85}}$

c. $\frac{7}{\sqrt{85}}$

d. $\frac{-\sqrt{85}}{49}$

e. $\frac{6}{7}$

____ 19. Suppose $\csc\theta = 7$ and θ terminates in QII. Find the remaining trigonometric ratios of θ.

a. $\sin\theta = \frac{1}{7}$

$\cos\theta = \frac{4\sqrt{3}}{7}$

$\tan\theta = \frac{1}{4\sqrt{3}}$

$\sec\theta = \frac{7}{4\sqrt{3}}$

$\cot\theta = 4\sqrt{3}$

b. $\sin\theta = \frac{1}{7}$

$\cos\theta = \frac{-4\sqrt{3}}{7}$

$\tan\theta = -4\sqrt{3}$

$\sec\theta = \frac{-7}{4\sqrt{3}}$

$\cot\theta = \frac{-1}{4\sqrt{3}}$

c. $\sin\theta = \frac{-4\sqrt{3}}{7}$

$\cos\theta = \frac{1}{7}$

$\tan\theta = \frac{-1}{4\sqrt{3}}$

$\sec\theta = \frac{-7}{4\sqrt{3}}$

$\cot\theta = -4\sqrt{3}$

d. $\sin\theta = \frac{-4\sqrt{3}}{7}$

$\cos\theta = \frac{1}{7}$

$\tan\theta = -4\sqrt{3}$

$\sec\theta = \frac{-7}{4\sqrt{3}}$

$\cot\theta = \frac{-1}{4\sqrt{3}}$

e. $\sin\theta = \frac{1}{7}$

$\cos\theta = \frac{-4\sqrt{3}}{7}$

$\tan\theta = \frac{-1}{4\sqrt{3}}$

$\sec\theta = \frac{-7}{4\sqrt{3}}$

$\cot\theta = -4\sqrt{3}$

____ 20. If $\csc\theta = -11$, find $\csc^3\theta$.

a. $1,331$
b. $\frac{-1}{33}$
c. -33
d. $\frac{-1}{1,331}$
e. $-1,331$

____ 21. Use fundamental identities to simplify the expression below and then determine which of the following is *not* equivalent.

$\sin\alpha(\csc\alpha - \sin\alpha)$

a. $1-\sin^2\alpha$
b. $\frac{\csc^2\alpha - 1}{\csc^2\alpha}$
c. $\frac{\csc^2\alpha - \sec^2\alpha + \tan^2\alpha}{\csc^2\alpha}$
d. $1-\cot^2\alpha$
e. $\cos^2\alpha$

____ 22. Multiply; then use fundamental identities to simplify the expression below and determine which of the following is *not* equivalent.

$(\sin x + \cos x)(\sin x - \cos x)$

a. $2\sin^2 x - \sec^2 x - \tan^2 x$
b. $\sin^2 x - \cos^2 x$
c. $1 - 2\cos^2 x$
d. $\csc^2 x - \cot^2 x - 2\cos^2 x$
e. $1 - 2\sin\left(\frac{\pi}{2} - x\right)\cos x$

____ 23. Which of the following is equivalent to the given expression?

$\frac{\sin^2 x}{1-\cos x}$

a. $\tan x + \sin x$
b. $1 + \cos x$
c. $\csc x + \cot x$
d. $\tan x \cot x - \cos x$
e. $\cot x \sin x + \tan x$

____ 24. Simplify the expression $\sqrt{x^2 + 13}$ as much as possible after substituting $\sqrt{13}\tan\theta$ for x.

a. $\sqrt{13}|\csc\theta|$
b. $\sqrt{13}|\sin\theta|$
c. $\sqrt{13}|\sec\theta|$
d. $13|\csc\theta|$
e. $13|\sec\theta|$

____ 25. Simplify the expression $\sqrt{30 - 6x^2}$ as much as possible after substituting $\sqrt{5}\sin\theta$ for x.

a. $30|\csc\theta|$
b. $\sqrt{30}|\csc\theta|$
c. $\sqrt{30}|\tan\theta|$
d. $30|\cos\theta|$
e. $\sqrt{30}|\cos\theta|$

McKeague/Turner Trigonometry 8e - Chapter 2 Form A

Answer Section

1. E
2. D
3. B
4. C
5. A
6. B
7. B
8. D
9. B
10. C
11. D
12. C
13. E
14. D
15. E
16. E
17. E
18. B
19. E
20. E
21. D
22. A
23. B
24. C
25. E

McKeague/Turner Trigonometry 8e - Chapter 2 Form B

Multiple Choice
Identify the choice that best completes the statement or answers the question.

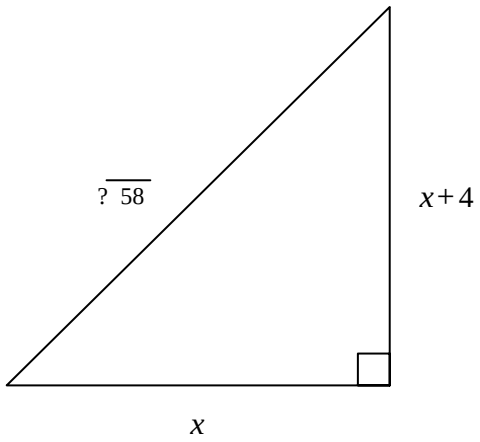
____ 1. Find the complement and supplement of the angle $59°$.

a. Complement: $31°$
Supplement: $121°$
b. Complement: $121°$
Supplement: $31°$
c. Complement: $41°$
Supplement: $141°$
d. Complement: $149°$
Supplement: $239°$
e. Complement: $121°$
Supplement: $301°$

____ 2. Let triangle *ABC* be a right triangle with $C = 90°$. If $c = 19$ and $a = 10$, find *b*.

a. 9
b. $\sqrt{9}$
c. $3\sqrt{29}$
d. $\sqrt{461}$
e. None of the above.

____ 3. Solve for *x* in the following right triangle:



a. 6
b. 4
c. 2
d. 5
e. 3

____ 4. Find the lengths of the shortest two sides of a $30° - 60° - 90°$ triangle, if the length of the longest side is 24.

a. $6,\ 6\sqrt{3}$

b. $6,\ \frac{6}{\sqrt{3}}$

c. $6,\ \frac{12}{\sqrt{3}}$

d. $12,\ \frac{12}{\sqrt{3}}$

e. $12,\ 12\sqrt{3}$

____ 5. Find the length of the shorter sides of a $45° - 45° - 90°$ triangle if the length of the hypotenuse is 17.

a. $\frac{17\sqrt{2}}{4}$

b. $\frac{17\sqrt{2}}{2}$

c. $\frac{17\sqrt{3}}{2}$

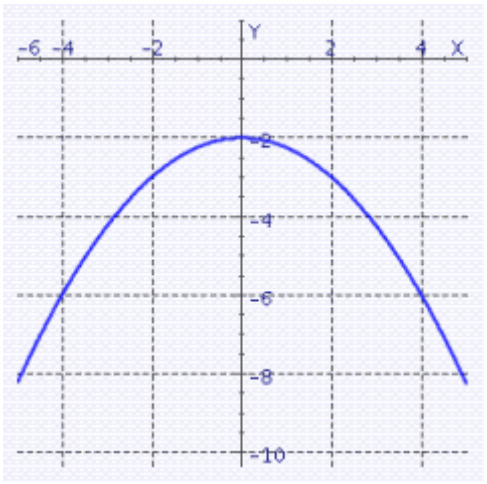
d. $\frac{17\sqrt{3}}{3}$

e. $\frac{17}{2}$

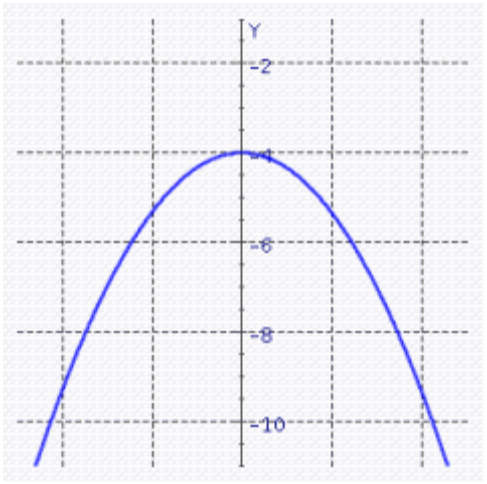
____ 6. Graph the following parabola.

$$f(x) = -\frac{1}{3}x^2 - 2$$

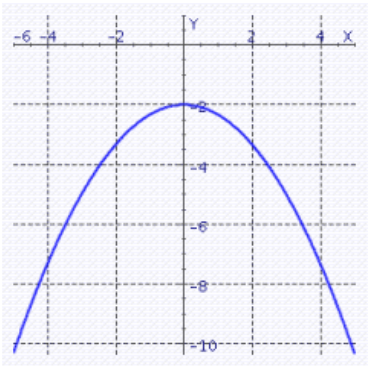
a.



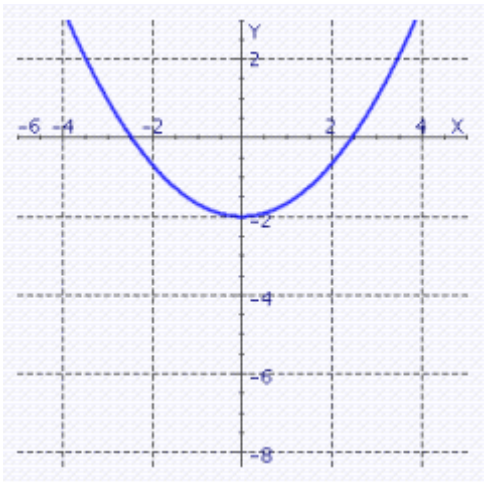
b.



c.



d.



e. None of the above.

____ 7. Find the distance between the two points $(-7, -5)$ and $(5, 11)$.
   a. 40
   b. 20
   c. 17
   d. 60
   e. 37

____ 8. Determine two coterminal angles (one positive and one negative) for $\theta = -506°$.
   a. $124°, -236°$
   b. $304°, -416°$
   c. $124°, -326°$
   d. $214°, -146°$
   e. $214°, -326°$

____ 9. Determine which of the following points is located in quadrant 4.

   a. $(-6, -4)$
   b. $(-4, 6)$
   c. $(6, 4)$
   d. $(4, -6)$
   e. $(-6, 4)$

____ 10. Which of the following points lies on the unit circle?

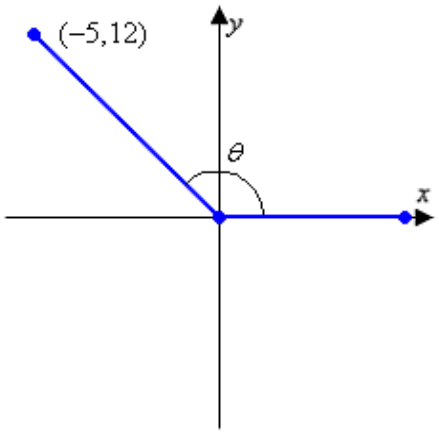
   a. $\left(\frac{9}{13}, \frac{-2\sqrt{10}}{13}\right)$
   b. $\left(\frac{-7}{11}, \frac{2\sqrt{10}}{11}\right)$
   c. $\left(\frac{9}{11}, \frac{2\sqrt{10}}{11}\right)$
   d. $\left(\frac{7}{15}, \frac{2\sqrt{10}}{15}\right)$
   e. None of the above.

____ 11. Given $\sin 30° = \frac{1}{2}$ and $\cos 30° = \frac{\sqrt{3}}{2}$, determine the following:

$\tan 30°$

a. $\tan 30° = \sqrt{3}$
b. $\tan 30° = 1$
c. $\tan 30° = \frac{\sqrt{2}}{2}$
d. $\tan 30° = \frac{\sqrt{3}}{3}$
e. undefined

____ 12. Given the figure below, determine the value of $\sin\theta$.



a. $\sin\theta = -\frac{5}{13}$
b. $\sin\theta = \frac{12}{5}$
c. $\sin\theta = \frac{12}{13}$
d. $\sin\theta = -\frac{5}{12}$
e. $\sin\theta = \frac{5}{12}$

____ 13. The point $(5, 12)$ is on the terminal side of an angle in standard position. Determine the exact value of $\sec\theta$.

a. $\sec\theta = -\frac{5}{13}$

b. $\sec\theta = \frac{5}{12}$

c. $\sec\theta = \frac{12}{5}$

d. $\sec\theta = -\frac{5}{12}$

e. $\sec\theta = \frac{13}{5}$

____ 14. Indicate the two quadrants θ could terminate in if $\tan\theta = -\frac{21}{31}$.

a. Quadrants I and III
b. Quadrants II and III
c. Quadrants I and IV
d. Quadrants II and IV
e. Quadrants III and IV

____ 15. Evaluate $\sin 150°$.

a. $\frac{\sqrt{2}}{2}$

b. $\frac{\sqrt{3}}{2}$

c. $\frac{-\sqrt{3}}{2}$

d. $\frac{1}{2}$

e. $\frac{-1}{2}$

____ 16. Find $\sin\theta$ if $\csc\theta = \frac{-19}{17}$.

a. $\frac{-17}{19}$

b. $\frac{-2}{19}$

c. $\frac{17}{19}$

d. $\frac{2}{19}$

e. $\frac{2}{17}$

____ 17. Find $\tan\theta$ if $\sec\theta = \frac{\sqrt{218}}{7}$ and $\csc\theta = \frac{\sqrt{218}}{13}$.

a. $\frac{218}{91}$
b. $\frac{13}{7}$
c. $\frac{7}{13}$
d. $-\frac{7}{13}$
e. $\frac{91}{218}$

____ 18. If $\sin\theta = \frac{-6}{\sqrt{85}}$ and θ terminates in QIV, find $\cos\theta$.

a. $\frac{-6}{7}$
b. $\frac{-7}{\sqrt{85}}$
c. $\frac{7}{\sqrt{85}}$
d. $\frac{6}{7}$
e. $\frac{\sqrt{85}}{49}$

____ 19. Suppose $\csc\theta = 15$ and θ terminates in QII. Find the remaining trigonometric ratios of θ.

a. $\sin\theta = \dfrac{-4\sqrt{14}}{15}$

$\cos\theta = \dfrac{1}{15}$

$\tan\theta = \dfrac{-1}{4\sqrt{14}}$

$\sec\theta = \dfrac{-15}{4\sqrt{14}}$

$\cot\theta = -4\sqrt{14}$

b. $\sin\theta = \dfrac{1}{15}$

$\cos\theta = \dfrac{4\sqrt{14}}{15}$

$\tan\theta = \dfrac{1}{4\sqrt{14}}$

$\sec\theta = \dfrac{15}{4\sqrt{14}}$

$\cot\theta = 4\sqrt{14}$

c. $\sin\theta = \dfrac{1}{15}$

$\cos\theta = \dfrac{-4\sqrt{14}}{15}$

$\tan\theta = -4\sqrt{14}$

$\sec\theta = \dfrac{-15}{4\sqrt{14}}$

$\cot\theta = \dfrac{-1}{4\sqrt{14}}$

d. $\sin\theta = \dfrac{-4\sqrt{14}}{15}$

$\cos\theta = \dfrac{1}{15}$

$\tan\theta = -4\sqrt{14}$

$\sec\theta = \dfrac{-15}{4\sqrt{14}}$

$\cot\theta = \dfrac{-1}{4\sqrt{14}}$

e. $\sin\theta = \dfrac{1}{15}$

$\cos\theta = \dfrac{-4\sqrt{14}}{15}$

$\tan\theta = \dfrac{-1}{4\sqrt{14}}$

$\sec\theta = \dfrac{-15}{4\sqrt{14}}$

$\cot\theta = -4\sqrt{14}$

____ 20. If $\csc\theta = -12$, find $\csc^3\theta$.

a. $\dfrac{-1}{36}$

b. $\dfrac{-1}{1,728}$

c. $-1,728$

d. -36

e. $1,728$

____ 21. Use fundamental identities to simplify the expression below and then determine which of the following is *not* equivalent.

$\sin\alpha(\csc\alpha - \sin\alpha)$

a. $1 - \sin^2\alpha$
b. $\dfrac{\csc^2\alpha - 1}{\csc^2\alpha}$
c. $\dfrac{\csc^2\alpha - \sec^2\alpha + \tan^2\alpha}{\csc^2\alpha}$
d. $1 - \cot^2\alpha$
e. $\cos^2\alpha$

____ 22. Multiply; then use fundamental identities to simplify the expression below and determine which of the following is *not* equivalent.

$(\tan x + 1)^2$

a. $\tan^2 x + 1$
b. $\sec^2 x + 2\tan x$
c. $\dfrac{1 + 2\sin x\cos x}{\cos^2 x}$
d. $\tan^2 x + 2\tan x + 1$
e. $\sec^2 x(1 + 2\sin x\cos x)$

____ 23. Which of the following is equivalent to the given expression?

$\dfrac{\sin^2 x}{1 - \cos x}$

a. $\tan x + \sin x$
b. $1 + \cos x$
c. $\csc x + \cot x$
d. $\tan x\cot x - \cos x$
e. $\cot x\sin x + \tan x$

____ 24. Simplify the expression $\sqrt{x^2 + 6}$ as much as possible after substituting $\sqrt{6}\tan\theta$ for x.

a. $6|\sec\theta|$
b. $\sqrt{6}|\sec\theta|$
c. $\sqrt{6}|\sin\theta|$
d. $6|\csc\theta|$
e. $\sqrt{6}|\csc\theta|$

____ 25. Simplify the expression $\sqrt{70 - 7x^2}$ as much as possible after substituting $\sqrt{10}\sin\theta$ for x.

a. $\sqrt{70}\,|\tan\theta|$
b. $\sqrt{70}\,|\cos\theta|$
c. $70|\cos\theta|$
d. $\sqrt{70}\,|\csc\theta|$
e. $70|\csc\theta|$

McKeague/Turner Trigonometry 8e - Chapter 2 Form B

Answer Section

1. A
2. C
3. E
4. E
5. B
6. C
7. B
8. D
9. D
10. C
11. D
12. C
13. E
14. D
15. D
16. A
17. B
18. C
19. E
20. C
21. D
22. A
23. B
24. B
25. B

McKeague/Turner Trigonometry 8e - Chapter 2 Form C

Multiple Choice/Short Answer
Identify the choice that best completes the statement or answers the question/Use the space provided to write your answer.

____ 1. Find the complement and supplement of the angle 54°.

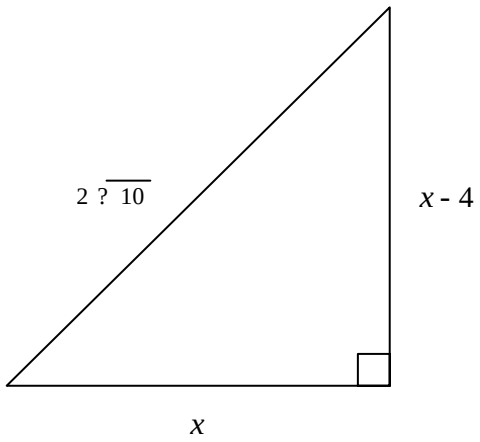
a. Complement: 36°
Supplement: 126°
b. Complement: 126°
Supplement: 36°
c. Complement: 46°
Supplement: 146°
d. Complement: 144°
Supplement: 234°
e. Complement: 126°
Supplement: 306°

2. Determine two coterminal angles (one positive and one negative) for $\theta = -457°$.

____ 3. Let triangle *ABC* be a right triangle with $C = 90°$. If $c = 19$ and $a = 6$, find *b*.

a. $\sqrt{13}$
b. $\sqrt{397}$
c. 13
d. $5\sqrt{13}$
e. None of the above.

____ 4. Solve for *x* in the following right triangle:



a. 9
b. 6
c. 5
d. 8
e. 7

____ 5. Find the lengths of the shortest two sides of a $30° - 60° - 90°$ triangle, if the length of the longest side is 16.

a. $4, \frac{8}{\sqrt{3}}$

b. $4, 4\sqrt{3}$

c. $8, 8\sqrt{3}$

d. $4, \frac{4}{\sqrt{3}}$

e. $8, \frac{8}{\sqrt{3}}$

____ 6. Find the length of the shorter sides of a $45° - 45° - 90°$ triangle if the length of the hypotenuse is 21.

a. $\frac{21\sqrt{2}}{2}$

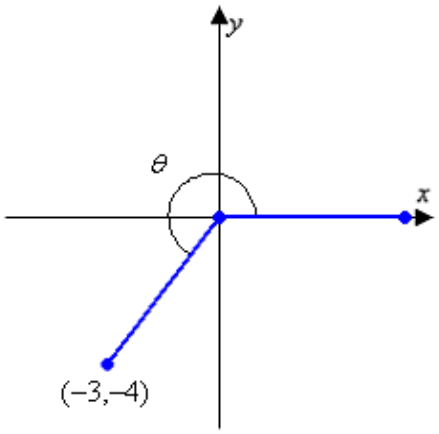
b. $\frac{21\sqrt{2}}{4}$

c. $\frac{21}{2}$

d. $\frac{21\sqrt{3}}{3}$

e. $\frac{21\sqrt{3}}{2}$

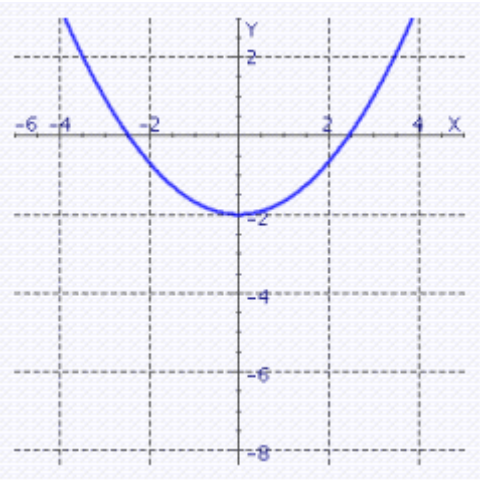
7. Given the figure below, determine the value of $\sin\theta$.



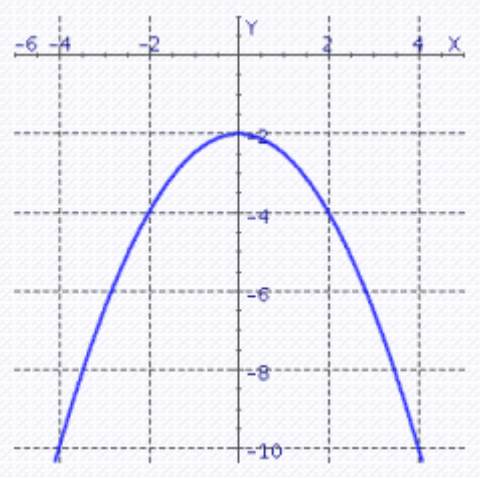
____ 8. Graph the following parabola.

$$f(x) = -\frac{1}{3}x^2 - 2$$

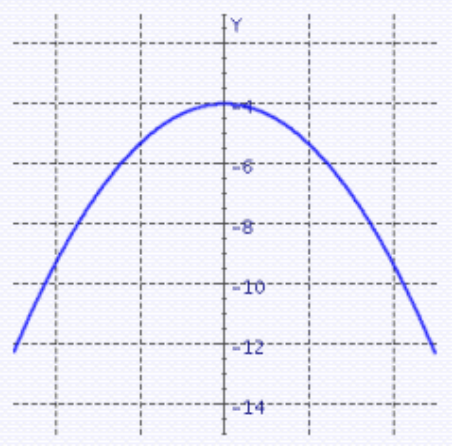
a.



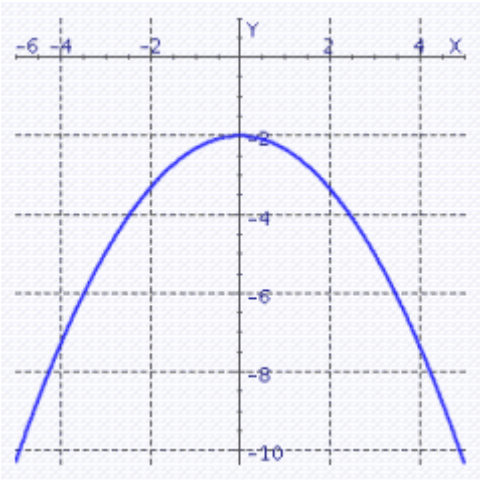
b.



c.



d.



e. None of the above.

____ 9. Find the distance between the two points $(-5, 8)$ and $(19, 53)$.
a. 102
b. 51
c. 48
d. 153
e. 99

____ 10. Determine which of the following points is located in quadrant 4.

a. $(-6, 3)$
b. $(-3, 6)$
c. $(3, 6)$
d. $(-3, -6)$
e. $(6, -3)$

____ 11. Which of the following points lies on the unit circle?

a. $\left(\frac{-5}{13}, \frac{-4\sqrt{2}}{13}\right)$
b. $\left(\frac{-7}{11}, \frac{4\sqrt{2}}{11}\right)$
c. $\left(\frac{5}{9}, \frac{-4\sqrt{2}}{9}\right)$
d. $\left(\frac{-7}{9}, \frac{-4\sqrt{2}}{9}\right)$
e. None of the above.

12. Given $\sin 30° = \frac{1}{2}$ and $\cos 30° = \frac{\sqrt{3}}{2}$, determine the following:

$\sec 30°$

____ 13. Indicate the two quadrants θ could terminate in if $\tan\theta = -\frac{17}{25}$.

a. Quadrants III and IV
b. Quadrants I and III
c. Quadrants I and IV
d. Quadrants II and III
e. Quadrants II and IV

____ 14. Evaluate $\sin 300°$.

a. $\frac{1}{2}$
b. $\frac{-\sqrt{2}}{2}$
c. $\frac{-1}{2}$
d. $\frac{-\sqrt{3}}{2}$
e. $\frac{\sqrt{3}}{2}$

____ 15. Find $\sin\theta$ if $\csc\theta = \frac{-19}{17}$.

a. $\frac{-2}{19}$
b. $\frac{-17}{19}$
c. $\frac{17}{19}$
d. $\frac{2}{17}$
e. $\frac{2}{19}$

____ 16. Find $\tan\theta$ if $\sec\theta = \frac{\sqrt{290}}{11}$ and $\csc\theta = \frac{\sqrt{290}}{13}$.

a. $-\frac{11}{13}$
b. $\frac{13}{11}$
c. $\frac{290}{143}$
d. $\frac{143}{290}$
e. $\frac{11}{13}$

____ 17. Multiply; then use fundamental identities to simplify the expression below and determine which of the following is *not* equivalent.

$(2-2\cos x)(2+2\cos x)$

a. $4-\cos^2 x$
b. $4-4\cos^2 x$
c. $4\sin^2 x$
d. $\frac{4}{\csc^2 x}$
e. $\frac{4}{1+\cot^2 x}$

____ 18. If $\sin\theta = \frac{-8}{\sqrt{89}}$ and θ terminates in QIV, find $\cos\theta$.

a. $\frac{5}{8}$

b. $\frac{-5}{8}$

c. $\frac{-5}{\sqrt{89}}$

d. $\frac{5}{\sqrt{89}}$

e. $\frac{\sqrt{89}}{25}$

19. The point $(7, 24)$ is on the terminal side of an angle in standard position. Determine the exact value of $\sin\theta$.

____ 20. Suppose $\csc\theta = 7$ and θ terminates in QII. Find the remaining trigonometric ratios of θ.

a. $\sin\theta = \frac{1}{7}$

$\cos\theta = \frac{4\sqrt{3}}{7}$

$\tan\theta = \frac{1}{4\sqrt{3}}$

$\sec\theta = \frac{7}{4\sqrt{3}}$

$\cot\theta = 4\sqrt{3}$

b. $\sin\theta = \frac{1}{7}$

$\cos\theta = \frac{-4\sqrt{3}}{7}$

$\tan\theta = \frac{-1}{4\sqrt{3}}$

$\sec\theta = \frac{-7}{4\sqrt{3}}$

$\cot\theta = -4\sqrt{3}$

c. $\sin\theta = \frac{-4\sqrt{3}}{7}$

$\cos\theta = \frac{1}{7}$

$\tan\theta = -4\sqrt{3}$

$\sec\theta = \frac{-7}{4\sqrt{3}}$

$\cot\theta = \frac{-1}{4\sqrt{3}}$

d. $\sin\theta = \frac{-4\sqrt{3}}{7}$

$\cos\theta = \frac{1}{7}$

$\tan\theta = \frac{-1}{4\sqrt{3}}$

$\sec\theta = \frac{-7}{4\sqrt{3}}$

$\cot\theta = -4\sqrt{3}$

e. $\sin\theta = \frac{1}{7}$

$\cos\theta = \frac{-4\sqrt{3}}{7}$

$\tan\theta = -4\sqrt{3}$

$\sec\theta = \frac{-7}{4\sqrt{3}}$

$\cot\theta = \frac{-1}{4\sqrt{3}}$

____ 21. If $\csc\theta = -14$, find $\csc^3\theta$.

a. $\frac{-1}{42}$

b. $\frac{-1}{2,744}$

c. $2,744$

d. $-2,744$

e. -42

____ 22. Use fundamental identities to simplify the expression below and then determine which of the following is *not* equivalent.

$$\sec\phi\left(\frac{\sin\phi}{\tan\phi}\right)$$

a. $\sec^2\phi - \tan^2\phi$
b. $\sin^2\phi + \cos^2\phi$
c. $\csc^2\phi - \cot^2\phi$
d. $\cos^2\phi - \sin^2\phi$
e. 1

____ 23. Simplify the expression $\sqrt{x^2+11}$ as much as possible after substituting $\sqrt{11}\tan\theta$ for *x*.

a. $\sqrt{11}\,|\sec\theta|$
b. $11|\sec\theta|$
c. $\sqrt{11}\,|\csc\theta|$
d. $\sqrt{11}\,|\sin\theta|$
e. $11|\csc\theta|$

____ 24. Simplify the expression $\sqrt{30-10x^2}$ as much as possible after substituting $\sqrt{3}\sin\theta$ for *x*.

a. $30|\cos\theta|$
b. $\sqrt{30}\,|\cos\theta|$
c. $\sqrt{30}\,|\csc\theta|$
d. $\sqrt{30}\,|\tan\theta|$
e. $30|\csc\theta|$

25. Which of the following is equivalent to the given expression?

$$\frac{\cot^2 x}{\csc x + 1}$$

McKeague/Turner Trigonometry 8e - Chapter 2 Form C

Answer Section

1. A
2. $263°, -97°$
3. D
4. B
5. C
6. A
7. $\sin\theta = -\frac{4}{5}$
8. D
9. B
10. E
11. D
12. $\sec 30° = \frac{2\sqrt{3}}{3}$
13. E
14. D
15. B
16. B
17. A
18. D
19. $\sin\theta = \frac{24}{25}$
20. B
21. D
22. D
23. A
24. B
25. $\csc x - 1$

McKeague/Turner Trigonometry 8e - Chapter 2 Form D

Multiple Choice/Short Answer
Identify the choice that best completes the statement or answers the question/Use the space provided to write your answer.

1. Determine two coterminal angles (one positive and one negative) for $\theta = -477°$.

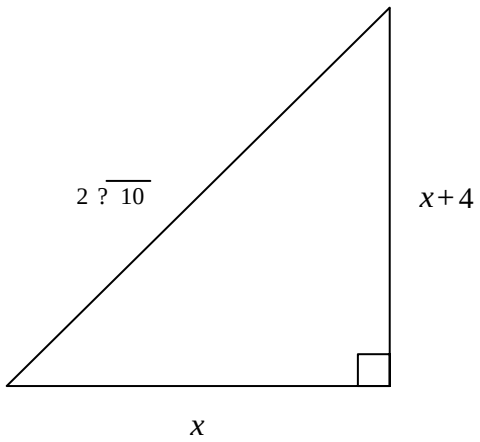
____ 2. Find the complement and supplement of the angle 59°.

a. Complement: 121°
Supplement: 301°
b. Complement: 41°
Supplement: 141°
c. Complement: 149°
Supplement: 239°
d. Complement: 121°
Supplement: 31°
e. Complement: 31°
Supplement: 121°

____ 3. Let triangle *ABC* be a right triangle with $C = 90°$. If $c = 19$ and $a = 2$, find *b*.

a. 17
b. $\sqrt{365}$
c. $\sqrt{357}$
d. $\sqrt{17}$
e. None of the above.

____ 4. Solve for *x* in the following right triangle:



a. 1
b. 5
c. 4
d. 3
e. 2

____ 5. Find the lengths of the shortest two sides of a $30° - 60° - 90°$ triangle, if the length of the longest side is 16.

a. $4, \frac{4}{\sqrt{3}}$

b. $4, 4\sqrt{3}$

c. $8, 8\sqrt{3}$

d. $4, \frac{8}{\sqrt{3}}$

e. $8, \frac{8}{\sqrt{3}}$

6. The point $(8, 15)$ is on the terminal side of an angle in standard position. Determine the exact value of $\cot\theta$.

____ 7. Find the length of the shorter sides of a $45° - 45° - 90°$ triangle if the length of the hypotenuse is 17.

a. $\frac{17\sqrt{3}}{3}$

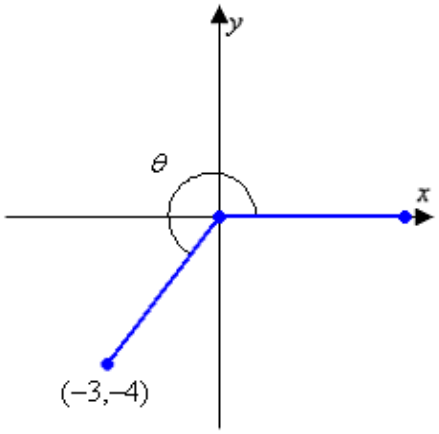
b. $\frac{17\sqrt{3}}{2}$

c. $\frac{17}{2}$

d. $\frac{17\sqrt{2}}{4}$

e. $\frac{17\sqrt{2}}{2}$

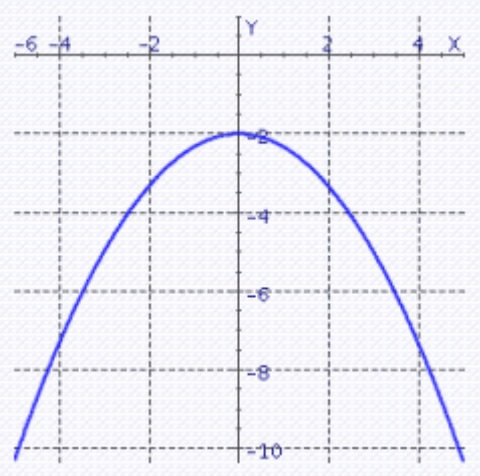
8. Given the figure below, determine the value of $\sin\theta$.



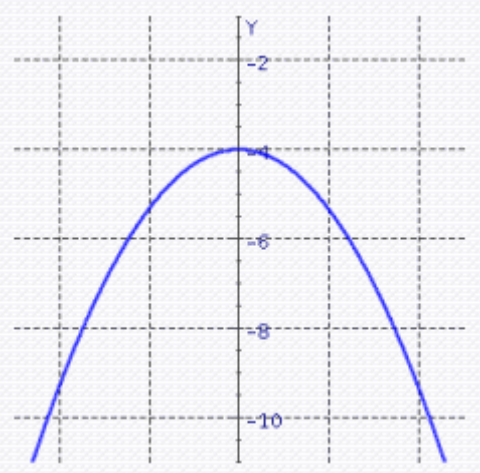
____ 9. Graph the following parabola.

$$f(x) = -\frac{1}{3}x^2 - 2$$

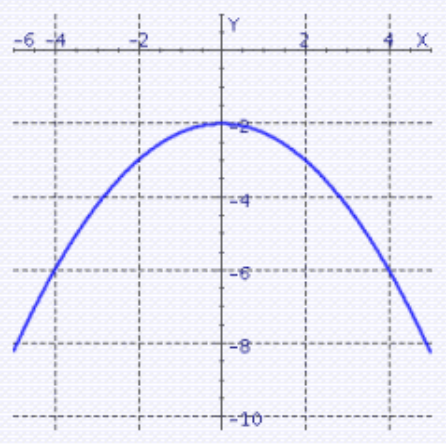
a.



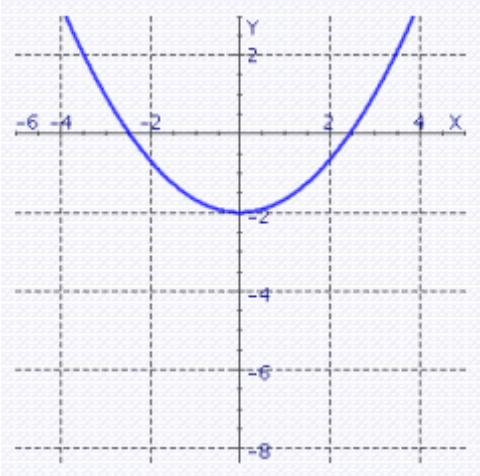
b.



c.



d.



e. None of the above.

____ 10. Determine which of the following points is located in quadrant 4.

a. $(6, 4)$
b. $(-6, -4)$
c. $(4, -6)$
d. $(-6, 4)$
e. $(-4, 6)$

____ 11. Find $\tan\theta$ if $\sec\theta = \frac{\sqrt{530}}{13}$ and $\csc\theta = \frac{\sqrt{530}}{19}$.

a. $\frac{530}{247}$
b. $\frac{13}{19}$
c. $\frac{19}{13}$
d. $-\frac{13}{19}$
e. $\frac{247}{530}$

____ 12. Which of the following points lies on the unit circle?

a. $\left(\frac{-7}{11}, \frac{2\sqrt{10}}{11}\right)$
b. $\left(\frac{7}{15}, \frac{2\sqrt{10}}{15}\right)$
c. $\left(\frac{9}{11}, \frac{2\sqrt{10}}{11}\right)$
d. $\left(\frac{9}{13}, \frac{-2\sqrt{10}}{13}\right)$
e. None of the above.

13. Given $\sin 30° = \frac{1}{2}$ and $\cos 30° = \frac{\sqrt{3}}{2}$, determine the following:

$\csc 30°$

____ 14. Which of the following is equivalent to the given expression?

$$\frac{\cos^2 x}{1+\sin x}$$

a. $\tan x + \cos x$
b. $1 - \sin x$
c. $\csc x + \cot x$
d. $\tan x \cot x - \sin x$
e. $\cot x \cos x + \tan x$

____ 15. Evaluate $\sin 240°$.

a. $\frac{-\sqrt{2}}{2}$
b. $\frac{1}{2}$
c. $\frac{-1}{2}$
d. $\frac{-\sqrt{3}}{2}$
e. $\frac{\sqrt{3}}{2}$

____ 16. Indicate the two quadrants θ could terminate in if $\tan\theta = -\frac{21}{31}$.

a. Quadrants I and III
b. Quadrants II and IV
c. Quadrants I and IV
d. Quadrants II and III
e. Quadrants III and IV

____ 17. Find $\sin\theta$ if $\csc\theta = \frac{-17}{13}$.

a. $\frac{13}{17}$
b. $\frac{-4}{17}$
c. $\frac{-13}{17}$
d. $\frac{4}{13}$
e. $\frac{4}{17}$

____ 18. Multiply; then use fundamental identities to simplify the expression below and determine which of the following is *not* equivalent.

$$(\tan x + 1)^2$$

a. $\tan^2 x + 1$
b. $\sec^2 x + 2\tan x$
c. $\frac{1 + 2\sin x \cos x}{\cos^2 x}$
d. $\tan^2 x + 2\tan x + 1$
e. $\sec^2 x(1 + 2\sin x \cos x)$

____ 19. If $\sin\theta = \frac{-6}{\sqrt{85}}$ and θ terminates in QIV, find $\cos\theta$.

a. $\frac{7}{\sqrt{85}}$

b. $\frac{6}{7}$

c. $\frac{\sqrt{85}}{49}$

d. $\frac{-7}{\sqrt{85}}$

e. $\frac{-6}{7}$

____ 20. Find the distance between the two points $(-7, -4)$ and $(41, 16)$.

a. 104
b. 52
c. 49
d. 156
e. 101

____ 21. Suppose $\csc\theta = 9$ and θ terminates in QII. Find the remaining trigonometric ratios of θ.

a. $\sin\theta = \frac{1}{9}$

$\cos\theta = \frac{4\sqrt{5}}{9}$

$\tan\theta = \frac{1}{4\sqrt{5}}$

$\sec\theta = \frac{9}{4\sqrt{5}}$

$\cot\theta = 4\sqrt{5}$

b. $\sin\theta = \frac{1}{9}$

$\cos\theta = \frac{-4\sqrt{5}}{9}$

$\tan\theta = \frac{-1}{4\sqrt{5}}$

$\sec\theta = \frac{-9}{4\sqrt{5}}$

$\cot\theta = -4\sqrt{5}$

c. $\sin\theta = \frac{-4\sqrt{5}}{9}$

$\cos\theta = \frac{1}{9}$

$\tan\theta = -4\sqrt{5}$

$\sec\theta = \frac{-9}{4\sqrt{5}}$

$\cot\theta = \frac{-1}{4\sqrt{5}}$

d. $\sin\theta = \frac{-4\sqrt{5}}{9}$

$\cos\theta = \frac{1}{9}$

$\tan\theta = \frac{-1}{4\sqrt{5}}$

$\sec\theta = \frac{-9}{4\sqrt{5}}$

$\cot\theta = -4\sqrt{5}$

e. $\sin\theta = \frac{1}{9}$

$\cos\theta = \frac{-4\sqrt{5}}{9}$

$\tan\theta = -4\sqrt{5}$

$\sec\theta = \frac{-9}{4\sqrt{5}}$

$\cot\theta = \frac{-1}{4\sqrt{5}}$

____ 22. If $\csc\theta = -12$, find $\csc^3\theta$.

a. $1,728$
b. -36
c. $\dfrac{-1}{1,728}$
d. $-1,728$
e. $\dfrac{-1}{36}$

____ 23. Use fundamental identities to simplify the expression below and then determine which of the following is *not* equivalent.

$\sin\alpha(\csc\alpha - \sin\alpha)$

a. $1-\sin^2\alpha$
b. $\dfrac{\csc^2\alpha - 1}{\csc^2\alpha}$
c. $\dfrac{\csc^2\alpha - \sec^2\alpha + \tan^2\alpha}{\csc^2\alpha}$
d. $1-\cot^2\alpha$
e. $\cos^2\alpha$

____ 24. Simplify the expression $\sqrt{x^2+10}$ as much as possible after substituting $\sqrt{10}\tan\theta$ for *x*.

a. $\sqrt{10}\,|\csc\theta|$
b. $\sqrt{10}\,|\sec\theta|$
c. $10|\sec\theta|$
d. $10|\csc\theta|$
e. $\sqrt{10}\,|\sin\theta|$

____ 25. Simplify the expression $\sqrt{66-11x^2}$ as much as possible after substituting $\sqrt{6}\sin\theta$ for *x*.

a. $66|\csc\theta|$
b. $66|\cos\theta|$
c. $\sqrt{66}\,|\tan\theta|$
d. $\sqrt{66}\,|\csc\theta|$
e. $\sqrt{66}\,|\cos\theta|$

McKeague/Turner Trigonometry 8e - Chapter 2 Form D

Answer Section

1. $243°, -117°$
2. E
3. C
4. E
5. C
6. $\cot\theta = \frac{8}{15}$
7. E
8. $\sin\theta = -\frac{4}{5}$
9. A
10. C
11. C
12. C
13. $\csc 30° = 2$
14. B
15. D
16. B
17. C
18. A
19. A
20. B
21. B
22. D
23. D
24. B
25. E

McKeague/Turner Trigonometry 8e - Chapter 2 Form E

Multiple Choice/Short Answer
Identify the choice that best completes the statement or answers the question/Use the space provided to write your answer.

____ 1. Use fundamental identities to simplify the expression below and then determine which of the following is *not* equivalent.

$\csc\rho\tan\rho+\sec\rho$

a. $\dfrac{2\tan\rho}{\sin\rho}$
b. $\dfrac{\csc\rho\sin\rho+\sec\rho\cos\rho}{\cos\rho}$
c. $\dfrac{\tan\rho\cos\rho+\sin\rho}{\sin\rho\cos\rho}$
d. $2\sin\rho$
e. $\dfrac{2}{\cos\rho}$

____ 2. Find the complement and supplement of the angle 59°.

a. Complement: 121°
Supplement: 31°
b. Complement: 31°
Supplement: 121°
c. Complement: 121°
Supplement: 301°
d. Complement: 41°
Supplement: 141°
e. Complement: 149°
Supplement: 239°

____ 3. Determine which of the following points is located in quadrant 4.

a. $(-3,-6)$
b. $(-6,3)$
c. $(3,6)$
d. $(-3,6)$
e. $(6,-3)$

____ 4. Which of the following points lies on the unit circle?

a. $\left(\frac{-7}{11}, \frac{-4\sqrt{2}}{11}\right)$

b. $\left(\frac{-7}{9}, \frac{4\sqrt{2}}{9}\right)$

c. $\left(\frac{5}{9}, \frac{4\sqrt{2}}{9}\right)$

d. $\left(\frac{-5}{13}, \frac{4\sqrt{2}}{13}\right)$

e. None of the above.

____ 5. Let triangle *ABC* be a right triangle with $C = 90°$. If $c = 19$ and $a = 2$, find *b*.

a. $\sqrt{357}$

b. $\sqrt{365}$

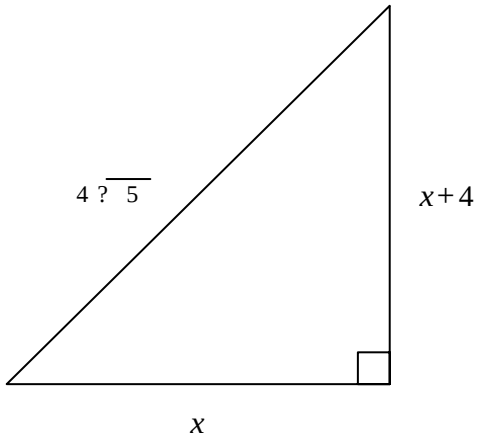
c. $\sqrt{17}$

d. 17

e. None of the above.

6. Determine two coterminal angles (one positive and one negative) for $\theta = -453°$.

____ 7. Solve for x in the following right triangle:

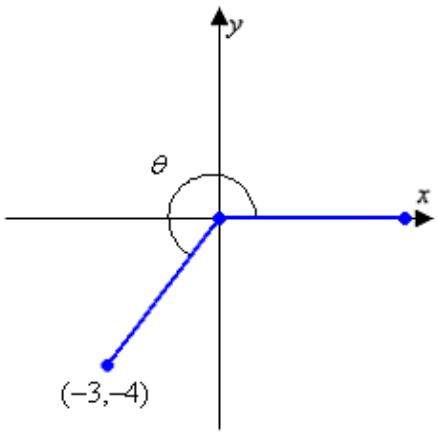


a. 6
b. 7
c. 5
d. 3
e. 4

____ 8. Find the lengths of the shortest two sides of a $30° - 60° - 90°$ triangle, if the length of the longest side is 20.

a. $10,\ 10\sqrt{3}$
b. $10,\ \frac{10}{\sqrt{3}}$
c. $5,\ \frac{10}{\sqrt{3}}$
d. $5,\ 5\sqrt{3}$
e. $5,\ \frac{5}{\sqrt{3}}$

9. Given the figure below, determine the value of $\sin\theta$.



____ 10. Indicate the two quadrants θ could terminate in if $\tan\theta = -\frac{17}{25}$.

a. Quadrants III and IV
b. Quadrants II and IV
c. Quadrants I and III
d. Quadrants I and IV
e. Quadrants II and III

____ 11. Evaluate $\sin 300°$.

a. $\frac{-\sqrt{3}}{2}$
b. $\frac{-1}{2}$
c. $\frac{1}{2}$
d. $\frac{\sqrt{3}}{2}$
e. $\frac{-\sqrt{2}}{2}$

12. The point $(8, 15)$ is on the terminal side of an angle in standard position. Determine the exact value of $\cot\theta$.

____ 13. Find $\sin\theta$ if $\csc\theta = \frac{-37}{31}$.

a. $\frac{6}{37}$
b. $\frac{-6}{37}$
c. $\frac{-31}{37}$
d. $\frac{6}{31}$
e. $\frac{31}{37}$

____ 14. Find $\tan\theta$ if $\sec\theta = \frac{\sqrt{410}}{11}$ and $\csc\theta = \frac{\sqrt{410}}{17}$.

a. $\frac{410}{187}$
b. $\frac{187}{410}$
c. $-\frac{11}{17}$
d. $\frac{17}{11}$
e. $\frac{11}{17}$

____ 15. Multiply; then use fundamental identities to simplify the expression below and determine which of the following is *not* equivalent.

$(2-2\cos x)(2+2\cos x)$

a. $4-\cos^2 x$
b. $4-4\cos^2 x$
c. $4\sin^2 x$
d. $\dfrac{4}{\csc^2 x}$
e. $\dfrac{4}{1+\cot^2 x}$

____ 16. If $\sin\theta = \dfrac{-8}{\sqrt{113}}$ and θ terminates in QIII, find $\cos\theta$.

a. $\dfrac{-7}{\sqrt{113}}$
b. $\dfrac{-7}{8}$
c. $\dfrac{7}{8}$
d. $\dfrac{7}{\sqrt{113}}$
e. $\dfrac{-\sqrt{113}}{49}$

____ 17. Suppose $\csc\theta = 9$ and θ terminates in QII. Find the remaining trigonometric ratios of θ.

a. $\sin\theta = \frac{1}{9}$

$\cos\theta = \frac{-4\sqrt{5}}{9}$

$\tan\theta = -4\sqrt{5}$

$\sec\theta = \frac{-9}{4\sqrt{5}}$

$\cot\theta = \frac{-1}{4\sqrt{5}}$

b. $\sin\theta = \frac{-4\sqrt{5}}{9}$

$\cos\theta = \frac{1}{9}$

$\tan\theta = \frac{-1}{4\sqrt{5}}$

$\sec\theta = \frac{-9}{4\sqrt{5}}$

$\cot\theta = -4\sqrt{5}$

c. $\sin\theta = \frac{-4\sqrt{5}}{9}$

$\cos\theta = \frac{1}{9}$

$\tan\theta = -4\sqrt{5}$

$\sec\theta = \frac{-9}{4\sqrt{5}}$

$\cot\theta = \frac{-1}{4\sqrt{5}}$

d. $\sin\theta = \frac{1}{9}$

$\cos\theta = \frac{4\sqrt{5}}{9}$

$\tan\theta = \frac{1}{4\sqrt{5}}$

$\sec\theta = \frac{9}{4\sqrt{5}}$

$\cot\theta = 4\sqrt{5}$

e. $\sin\theta = \frac{1}{9}$

$\cos\theta = \frac{-4\sqrt{5}}{9}$

$\tan\theta = \frac{-1}{4\sqrt{5}}$

$\sec\theta = \frac{-9}{4\sqrt{5}}$

$\cot\theta = -4\sqrt{5}$

____ 18. If $\csc\theta = -11$, find $\csc^3\theta$.

a. -33
b. $\frac{-1}{33}$
c. $\frac{-1}{1,331}$
d. $-1,331$
e. $1,331$

____ 19. Find the length of the shorter sides of a $45° - 45° - 90°$ triangle if the length of the hypotenuse is 19.

a. $\frac{19\sqrt{3}}{2}$

b. $\frac{19\sqrt{3}}{3}$

c. $\frac{19\sqrt{2}}{2}$

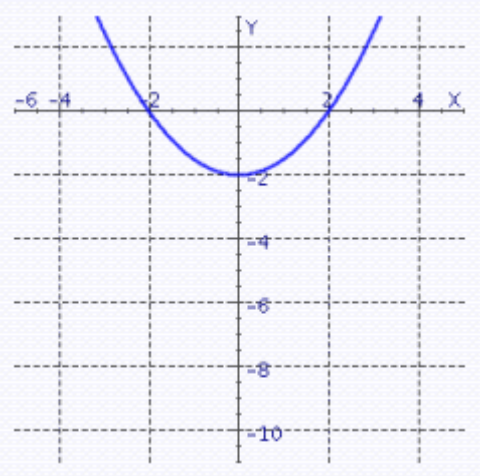
d. $\frac{19}{2}$

e. $\frac{19\sqrt{2}}{4}$

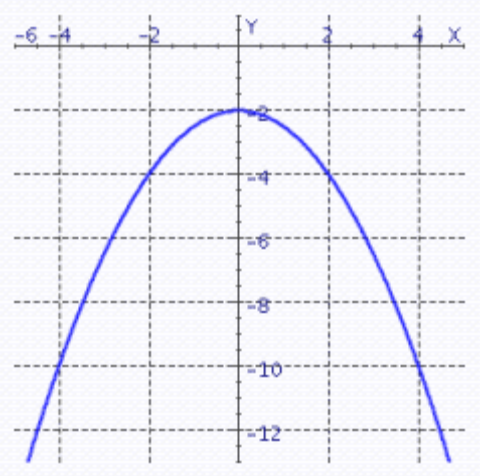
____ 20. Graph the following parabola.

$$f(x) = -\frac{1}{2}x^2 - 2$$

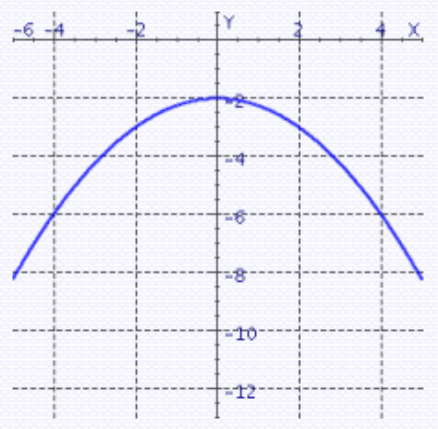
a.



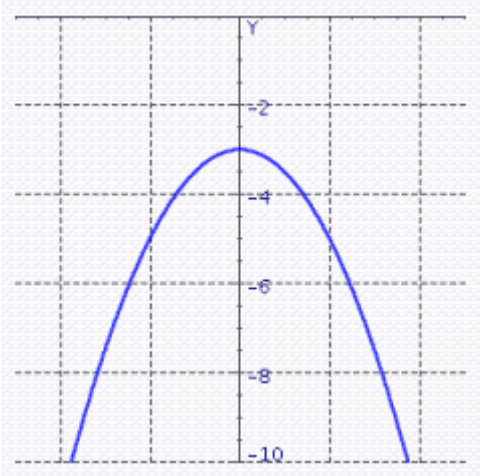
b.



c.



d.



e. None of the above.

21. Given $\sin 30° = \frac{1}{2}$ and $\cos 30° = \frac{\sqrt{3}}{2}$, determine the following:

$\tan 30°$

____ 22. Find the distance between the two points $(9, 4)$ and $(49, 79)$.

a. 170
b. 85
c. 82
d. 255
e. 167

____ 23. Simplify the expression $\sqrt{x^2 + 10}$ as much as possible after substituting $\sqrt{10}\tan\theta$ for *x*.

a. $\sqrt{10}|\sec\theta|$
b. $\sqrt{10}|\sin\theta|$
c. $\sqrt{10}|\csc\theta|$
d. $10|\csc\theta|$
e. $10|\sec\theta|$

____ 24. Simplify the expression $\sqrt{30 - 6x^2}$ as much as possible after substituting $\sqrt{5}\sin\theta$ for *x*.

a. $30|\csc\theta|$
b. $\sqrt{30}|\csc\theta|$
c. $\sqrt{30}|\tan\theta|$
d. $30|\cos\theta|$
e. $\sqrt{30}|\cos\theta|$

____ 25. Which of the following is equivalent to the given expression?

$$\frac{\sin^2 x}{1 - \cos x}$$

a. $\tan x + \sin x$
b. $1 + \cos x$
c. $\csc x + \cot x$
d. $\tan x \cot x - \cos x$
e. $\cot x \sin x + \tan x$

McKeague/Turner Trigonometry 8e - Chapter 2 Form E

Answer Section

1. D
2. B
3. E
4. B
5. A
6. $267°, -93°$
7. E
8. A
9. $\sin\theta = -\frac{4}{5}$
10. B
11. A
12. $\cot\theta = \frac{8}{15}$
13. C
14. D
15. A
16. A
17. E
18. D
19. C
20. B
21. $\tan 30° = \frac{\sqrt{3}}{3}$
22. B
23. A
24. E
25. B

McKeague/Turner Trigonometry Chapter 2 Form F

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Use fundamental identities to simplify the expression below and then determine which of the following is *not* equivalent.

$\cot\beta\sec\beta$

a. $\dfrac{1}{\sin\beta}$
b. $\dfrac{\sec\beta}{\tan\beta}$
c. $\dfrac{1}{\cos\beta\tan\beta}$
d. $\sec\beta$
e. $\csc\beta$

____ 2. Find the complement and supplement of the angle 55°.

a. Complement: 45°
Supplement: 145°
b. Complement: 125°
Supplement: 35°
c. Complement: 145°
Supplement: 235°
d. Complement: 35°
Supplement: 125°
e. Complement: 125°
Supplement: 305°

____ 3. Determine which of the following points is located in quadrant 4.

a. $(-5, -6)$
b. $(6, -5)$
c. $(5, 6)$
d. $(-6, 5)$
e. $(-5, 6)$

____ 4. Which of the following points lies on the unit circle?

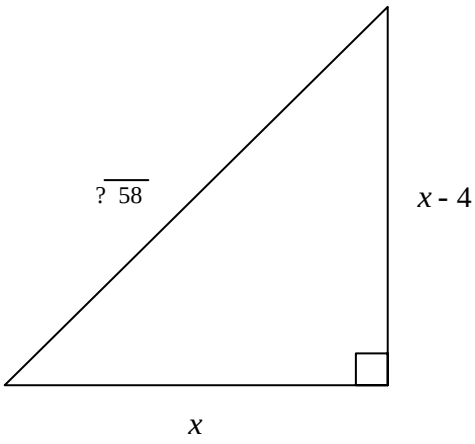
a. $\left(\dfrac{-5}{7}, \dfrac{2\sqrt{6}}{7}\right)$
b. $\left(\dfrac{-5}{9}, \dfrac{-2\sqrt{6}}{9}\right)$
c. $\left(\dfrac{3}{7}, \dfrac{2\sqrt{6}}{7}\right)$
d. $\left(\dfrac{-3}{11}, \dfrac{2\sqrt{6}}{11}\right)$
e. None of the above.

5. Determine two coterminal angles (one positive and one negative) for $\theta = -526°$.

____ 6. Let triangle *ABC* be a right triangle with $C = 90°$. If $c = 19$ and $a = 6$, find *b*.

a. $\sqrt{13}$
b. $\sqrt{397}$
c. 13
d. $5\sqrt{13}$
e. None of the above.

____ 7. Solve for *x* in the following right triangle:



a. 8
b. 9
c. 6
d. 7
e. 10

____ 8. Find the lengths of the shortest two sides of a $30° - 60° - 90°$ triangle, if the length of the longest side is 16.

a. $4, \frac{8}{\sqrt{3}}$
b. $4, 4\sqrt{3}$
c. $8, \frac{8}{\sqrt{3}}$
d. $4, \frac{4}{\sqrt{3}}$
e. $8, 8\sqrt{3}$

____ 9. Indicate the two quadrants θ could terminate in if $\tan\theta = -\frac{13}{23}$.

a. Quadrants I and III
b. Quadrants III and IV
c. Quadrants II and III
d. Quadrants I and IV
e. Quadrants II and IV

____ 10. Evaluate $\sin 240°$.

a. $\frac{-1}{2}$
b. $\frac{1}{2}$
c. $\frac{\sqrt{3}}{2}$
d. $\frac{-\sqrt{2}}{2}$
e. $\frac{-\sqrt{3}}{2}$

11. The point $(7, 24)$ is on the terminal side of an angle in standard position. Determine the exact value of $\csc\theta$.

____ 12. Find $\sin\theta$ if $\csc\theta = \frac{-17}{13}$.

a. $\frac{-13}{17}$
b. $\frac{4}{13}$
c. $\frac{4}{17}$
d. $\frac{13}{17}$
e. $\frac{-4}{17}$

____ 13. Find $\tan\theta$ if $\sec\theta = \frac{\sqrt{410}}{11}$ and $\csc\theta = \frac{\sqrt{410}}{17}$.

a. $\frac{11}{17}$
b. $\frac{17}{11}$
c. $-\frac{11}{17}$
d. $\frac{187}{410}$
e. $\frac{410}{187}$

____ 14. Multiply; then use fundamental identities to simplify the expression below and determine which of the following is *not* equivalent.

$(\tan x + 1)^2$

a. $\tan^2 x + 1$
b. $\sec^2 x + 2\tan x$
c. $\dfrac{1 + 2\sin x \cos x}{\cos^2 x}$
d. $\tan^2 x + 2\tan x + 1$
e. $\sec^2 x(1 + 2\sin x \cos x)$

____ 15. If $\sin\theta = \dfrac{-6}{\sqrt{157}}$ and θ terminates in QIII, find $\cos\theta$.

a. $\dfrac{11}{\sqrt{157}}$
b. $\dfrac{-\sqrt{157}}{121}$
c. $\dfrac{-11}{\sqrt{157}}$
d. $\dfrac{-6}{11}$
e. $\dfrac{6}{11}$

____ 16. Suppose $\csc\theta = 7$ and θ terminates in QII. Find the remaining trigonometric ratios of θ.

a. $\sin\theta = \frac{1}{7}$

$\cos\theta = \frac{-4\sqrt{3}}{7}$

$\tan\theta = -4\sqrt{3}$

$\sec\theta = \frac{-7}{4\sqrt{3}}$

$\cot\theta = \frac{-1}{4\sqrt{3}}$

b. $\sin\theta = \frac{-4\sqrt{3}}{7}$

$\cos\theta = \frac{1}{7}$

$\tan\theta = -4\sqrt{3}$

$\sec\theta = \frac{-7}{4\sqrt{3}}$

$\cot\theta = \frac{-1}{4\sqrt{3}}$

c. $\sin\theta = \frac{1}{7}$

$\cos\theta = \frac{4\sqrt{3}}{7}$

$\tan\theta = \frac{1}{4\sqrt{3}}$

$\sec\theta = \frac{7}{4\sqrt{3}}$

$\cot\theta = 4\sqrt{3}$

d. $\sin\theta = \frac{1}{7}$

$\cos\theta = \frac{-4\sqrt{3}}{7}$

$\tan\theta = \frac{-1}{4\sqrt{3}}$

$\sec\theta = \frac{-7}{4\sqrt{3}}$

$\cot\theta = -4\sqrt{3}$

e. $\sin\theta = \frac{-4\sqrt{3}}{7}$

$\cos\theta = \frac{1}{7}$

$\tan\theta = \frac{-1}{4\sqrt{3}}$

$\sec\theta = \frac{-7}{4\sqrt{3}}$

$\cot\theta = -4\sqrt{3}$

17. Given $\sin 30° = \frac{1}{2}$ and $\cos 30° = \frac{\sqrt{3}}{2}$, determine the following:

$\sec 30°$

____ 18. If $\csc\theta = -11$, find $\csc^3\theta$.

a. -33

b. $\dfrac{-1}{1,331}$

c. $-1,331$

d. $\dfrac{-1}{33}$

e. $1,331$

____ 19. Find the length of the shorter sides of a $45° - 45° - 90°$ triangle if the length of the hypotenuse is 17.

a. $\dfrac{17}{2}$

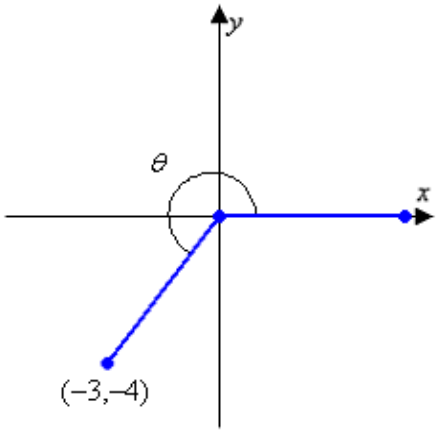
b. $\dfrac{17\sqrt{3}}{3}$

c. $\dfrac{17\sqrt{2}}{4}$

d. $\dfrac{17\sqrt{3}}{2}$

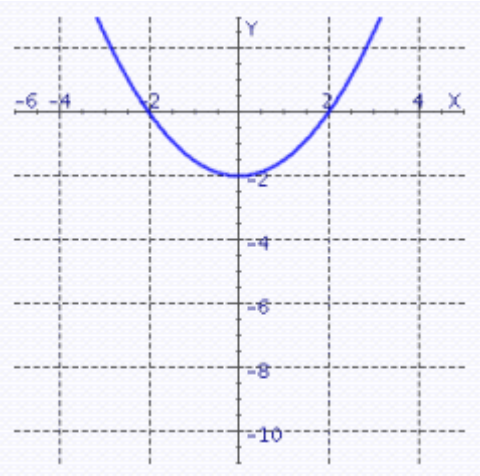
e. $\dfrac{17\sqrt{2}}{2}$

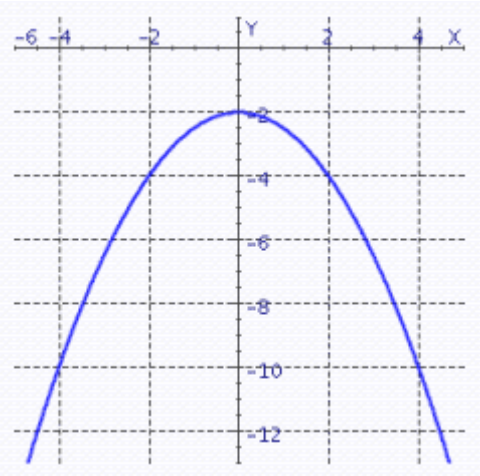
20. Given the figure below, determine the value of $\sin\theta$.

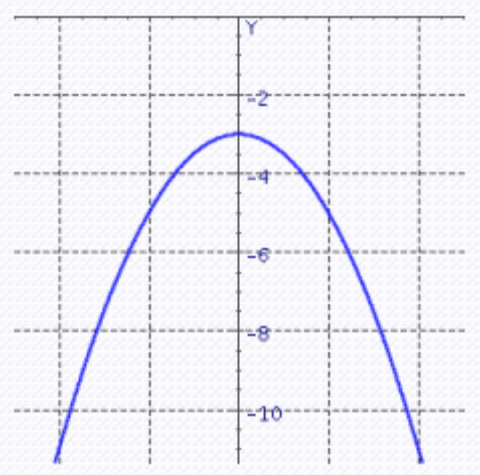


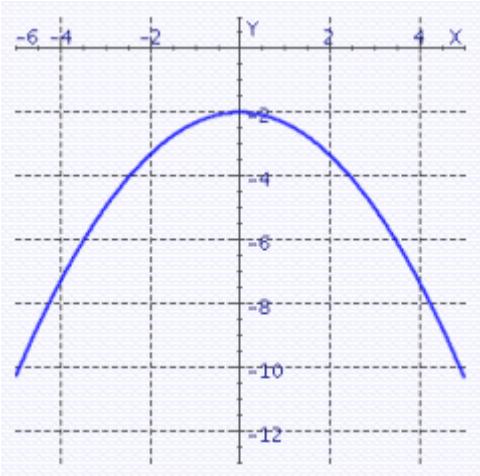
____ 21. Graph the following parabola.

$$f(x) = -\frac{1}{2}x^2 - 2$$

a. 

b. 

c. 

d. 

e. None of the above.

____ 22. Find the distance between the two points $(4, 2)$ and $(10, 10)$.

a. 20
b. 10
c. 7
d. 30
e. 17

____ 23. Which of the following is equivalent to the given expression?

$$\frac{\cos^2 x}{1+\sin x}$$

a. $\tan x + \cos x$
b. $1 - \sin x$
c. $\csc x + \cot x$
d. $\tan x \cot x - \sin x$
e. $\cot x \cos x + \tan x$

____ 24. Simplify the expression $\sqrt{x^2 + 13}$ as much as possible after substituting $\sqrt{13}\tan\theta$ for *x*.

a. $\sqrt{13}|\csc\theta|$
b. $\sqrt{13}|\sin\theta|$
c. $\sqrt{13}|\sec\theta|$
d. $13|\csc\theta|$
e. $13|\sec\theta|$

____ 25. Simplify the expression $\sqrt{30 - 6x^2}$ as much as possible after substituting $\sqrt{5}\sin\theta$ for *x*.

a. $\sqrt{30}|\tan\theta|$
b. $30|\csc\theta|$
c. $\sqrt{30}|\cos\theta|$
d. $\sqrt{30}|\csc\theta|$
e. $30|\cos\theta|$

McKeague/Turner Trigonometry Chapter 2 Form F
Answer Section

1. D
2. D
3. B
4. A
5. $194°, -166°$
6. D
7. D
8. E
9. E
10. E
11. $\csc\theta = \frac{25}{24}$
12. A
13. B
14. A
15. C
16. D
17. $\sec 30° = \frac{2\sqrt{3}}{3}$
18. C
19. E
20. $\sin\theta = -\frac{4}{5}$
21. B
22. B
23. B
24. C
25. C