1. Chapter 5, Section 5.1, Question 018

Use the right triangle below. This triangle is not drawn to scale corresponding to the given data.

Suppose \( a = 9 \) and \( c = 10 \). Evaluate \( \theta \) in radians.

Round your answer to three decimal places.

\[ \theta = \boxed{\text{\textdegree}} \text{ radians} \]

*Significant digits not applicable; the absolute tolerance is +/-0.002

2. Chapter 5, Section 5.1, Question 024

Use the right triangle below. This triangle is not drawn to scale corresponding to the given data.

Suppose \( a = 11 \) and \( b = 10 \). Evaluate \( \varphi \) in degrees.

Round your answer to one decimal place.

\[ \varphi = \boxed{\text{\textdegree}} \text{ degrees} \]

*Significant digits not applicable; the absolute tolerance is +/-0.2

3. Chapter 5, Section 5.1, Question 026
Find the angle between the two sides of length 4 in an isosceles triangle that has one side of length 3 and two sides of length 4.

Round your answer to one decimal place.

\[ \text{degrees} \]

*Significant digits not applicable; the absolute tolerance is +/-0.1*

4. Chapter 5, Section 5.1, Question 029

Find the smallest positive number \( t \) such that

\[ 10^{\cos t} = 5. \]

Round your answer to three decimal places.

\[ t = \text{rad} \]

*Significant digits not applicable; the absolute tolerance is +/-0.002*

5. Chapter 5, Section 5.1, Question 030

Find the smallest positive number \( t \) such that

\[ 10^{\sin t} = 3. \]

Round your answer to three decimal places.

\[ t = \text{rad} \]

*Significant digits not applicable; the absolute tolerance is +/-0.002*

6. Chapter 5, Section 5.1, Question 032

Find the smallest positive number \( t \) such that
e^{\tan t} = 400.

Round your answer to three decimal places.

\[ t = \boxed{\quad} \quad \text{radians} \]

*Significant digits not applicable; the absolute tolerance is +/-0.002*

---

**7. Chapter 5, Section 5.1, Question 033**

Find the smallest positive number \( \gamma \) such that

\[ \cos(\tan \gamma) = 0.7. \]

Round your answer to three decimal places.

\[ \gamma = \boxed{\quad} \quad \text{radians} \]

*Significant digits not applicable; the absolute tolerance is +/-0.002*

---

**8. Chapter 5, Section 5.1, Question 036**

Find the smallest positive number \( x \) such that

\[ \sin^2 x - 20\sin x + 18 = 0. \]

Round your answer to three decimal places.

\[ x = \boxed{\quad} \quad \text{radians} \]

*Significant digits not applicable; the absolute tolerance is +/-0.002*

---

**9. Chapter 5, Section 5.1, Question 044**

What is the angle between the positive horizontal axis and the line containing the points \((4, 7)\) and \((8, 4)\)?

Enter a positive angle.
Round your answer to one decimal place.

$$\theta = \text{\phantom{0}}^\circ$$ degrees

*Significant digits not applicable; the absolute tolerance is +/-0.5*

10. Chapter 5, Section 5.1, Question 042
What angle does the line $y = 6x$ in the $xy$-plane make with the positive $x$-axis?

Round your answer to one decimal place.

$$\theta = \text{\phantom{0}}^\circ$$ degrees

*Significant digits not applicable; the absolute tolerance is +/-0.1*

11. Chapter 5, Section 5.1, Question 050

Use the right triangle below to find three expressions of the angle, $\gamma$ in terms of the inverse trigonometric functions.

$$\gamma = \cos^{-1}$$
12. Chapter 5, Section 5.1, Question 052

Without using a calculator, sketch the unit circle and the radius corresponding to $\cos^{-1} 0.1$.

Choose the correct answer.

a. 

b.
c.

Answer: ______

d.

e.

13. Chapter 6, Section 6.1, Question 005
Suppose the figure above is part of the graph of the function $5 \sin x$. What is the value of $b$?

\[ b = \phantom{1} \]

*Significant digits not applicable; exact number, no tolerance*

14. Chapter 6, Section 6.1, Question 006

Suppose the figure above is part of the graph of the function $8 \sin(3x)$. What is the value of $b$?

\[ b = \phantom{1} \]

*Significant digits not applicable; exact number, no tolerance*

15. Chapter 6, Section 6.1, Question 008
Suppose the figure above is part of the graph of the function $g \sin (9x)$. What is the value of $a$?

$a = \phantom{0}$

16. Chapter 6, Section 6.1, Question 010

Find the smallest positive number $c$ such that the figure above is part of the graph of the function $\sin (x - c)$.

$c = \phantom{0}$
17. Chapter 6, Section 6.1, Question 012

Find the smallest positive number $c$ such that the figure above is part of the graph of the function $\cos(x + c)$.

[Hint: The correct answer is not $\frac{\pi}{2}$.]

c =

18. Chapter 6, Section 6.1, Question 013b

What is the range of the function $5 + \cos x$?

Enter your answer in interval notation.

Range =
19. Chapter 6, Section 6.1, Question 013d

What is the period of the function $5 + \cos x$?

Period = 

20. Chapter 6, Section 6.1, Question 014c

What is the amplitude of the function $3 - \cos x$?

Amplitude = ___________ *1

*Significant digits not applicable; exact number, no tolerance*

21. Chapter 6, Section 6.1, Question 018c

What is the amplitude of the function $9\cos(3\pi x)$?

Amplitude = ___________ *1

*Significant digits not applicable; exact number, no tolerance*

22. Chapter 6, Section 6.1, Question 018d

What is the period of the function $6\cos(3\pi x)$?

Enter an exact answer.
23. Chapter 6, Section 6.1, Question 022

Assume that $f$ is the function defined by

$$f(x) = a \cos(bx + c) + d,$$

where $a$, $b$, $c$, and $d$ are constants.

Find two distinct values for $a$ so that $f$ has amplitude $\frac{a}{5}$.

Enter the exact answers in increasing order.

$$a =$$

$$a =$$

24. Chapter 6, Section 6.1, Question 030

Assume that $f$ is the function defined by
\[ f(x) = a \cos(bx + c) + d \]

where \(a\), \(b\), \(c\), and \(d\) are constants.

Find values for \(a\), \(d\), \(c\), and \(b\) with \(a > 0\) and \(b > 0\) and \(0 \leq c \leq \pi\), so that \(f\) has range \([-7, 3]\), \(f(0) = -3\), and \(f\) has period 10.

Enter the exact answers.

\[ a = \]

\[ d = \]

\[ c = \]

\[ b = \]