

Final Exam Review

Perform the indicated operation.

- 1) $g(n) = 2n + 3$
 $f(n) = n - 4$
 Find $g(f(10))$
- A) -9 B) -25
 C) 19 *D) 15

Simplify.

- 3) $(2i) + (2 + 7i) + (8i)$
- *A) $2 + 17i$ B) $2 + i$
 C) $6 + 31i$ D) $2 + 13i$

Evaluate each function at the given value.

- 5) $f(x) = -x^3 + 5x^2 - 5x - 9$ at $x = 3$
- A) -2 *B) -6
 C) -3 D) -5

Divide.

- 7) $(x^3 - 18x^2 + 83x - 28) \div (x - 8)$
- *A) $x^2 - 10x + 3 - \frac{4}{x - 8}$
 B) $x^2 - 10x + 4 - \frac{5}{x - 8}$
 C) $x^2 - 10x + 3 - \frac{1}{x - 8}$
 D) $x^2 - 10x + 4 - \frac{8}{x - 8}$

Find the inverse of each function.

- 2) $g(x) = \sqrt[3]{x + 2} - 1$
- A) $g^{-1}(x) = -2 - 2x^3$
 B) $g^{-1}(x) = \sqrt[3]{x - 2} + 2$
 C) $g^{-1}(x) = -(x + 2)^5$
 *D) $g^{-1}(x) = (x + 1)^3 - 2$

Solve each equation with the quadratic formula.

- 4) $2x^2 - x + 1 = 0$
- A) $\{1, -0.5\}$
 *B) $\left\{\frac{1 + i\sqrt{7}}{4}, \frac{1 - i\sqrt{7}}{4}\right\}$
 C) $\{5, -4\}$
 D) $\left\{\frac{-1 + i\sqrt{7}}{4}, \frac{-1 - i\sqrt{7}}{4}\right\}$

Find all roots.

- 6) $x^4 - 13x^2 + 36 = 0$
- A) $\{2, -1 \text{ mult. } 2, -4\}$
 B) $\{-2 \text{ mult. } 2, 3, -3\}$
 C) $\{2, -2 \text{ mult. } 2, 3\}$
 *D) $\{2, -2, 3, -3\}$

Solve each equation.

- 8) $16^n = 13$
- A) $\log_{13} 15 - 1$ *B) $\log_{16} 13$
 C) $\log_{16} 3 - 1$ D) $\log_{13} 16$

Evaluate each expression.

9) $\log_7 49$

- *A) 2 B) 7
C) -2 D) 3

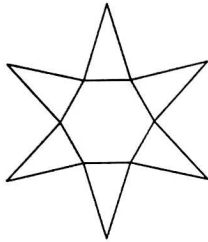
Solve each equation.

10) $\log_4 (x + 4) - \log_4 2 = 1$

- *A) {4} B) $\left\{-\frac{28}{5}\right\}$
C) $\left\{-\frac{32}{9}\right\}$ D) {112}

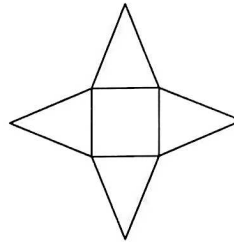
Identify each solid given its net.

11)



- A) rectangular prism
B) hexagonal prism
*C) hexagonal pyramid
D) cone

12)



- A) hexagonal prism
*B) square pyramid
C) triangular prism
D) square prism

Simplify each expression.

13) $\frac{n+9}{n^2+12n+27} \div \frac{n-7}{8}$

- *A) $\frac{8}{(n+3)(n-7)}$ B) $n+6$
C) $9n^2$ D) $\frac{n+3}{2}$

14) $\frac{5}{n+4} + \frac{3}{n-2}$

- A) $\frac{8n-1}{2+n}$
B) $\frac{15n^2-6n}{5(n-3)}$
*C) $\frac{8n+2}{(n-2)(n+4)}$
D) $\frac{9n}{(n-2)(n+4)}$

Solve each equation. Remember to check for extraneous solutions.

15) $\frac{r-6}{9r} + \frac{r+4}{3r} = \frac{1}{3}$

- A) {1} B) {8}
*C) {-6} D) {0}

Identify the holes and vertical asymptotes of each.

16) $f(x) = \frac{x^2 + 5x + 4}{x^2 - 2x - 3}$

- A) Vertical Asym.: $x = 3, x = -1$
Holes: None
- *B) Vertical Asym.: $x = 3$
Holes: $x = -1$
- C) Vertical Asym.: $x = -4$
Holes: $x = -1$
- D) Vertical Asym.: $x = -4, x = -1$
Holes: None

Use the information provided to write the standard form equation of each circle.

17) Center: $(1, 10)$
Radius: 5

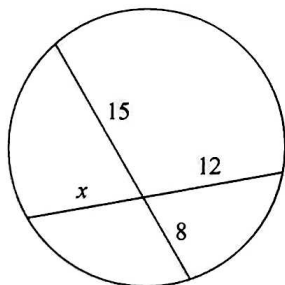
- A) $(x - 12)^2 + (y + 3)^2 = 25$
- *B) $(x - 1)^2 + (y - 10)^2 = 25$
- C) $(x - 8)^2 + y^2 = 25$
- D) $(x + 10)^2 + (y + 1)^2 = 625$

18) $x^2 + y^2 - 2x + 28y + 192 = 0$

- A) $(x + 14)^2 + (y + 1)^2 = 5$
- B) $(x + 1)^2 + (y - 14)^2 = 5$
- *C) $(x - 1)^2 + (y + 14)^2 = 5$
- D) $(x + 12)^2 + (y + 1)^2 = 5$

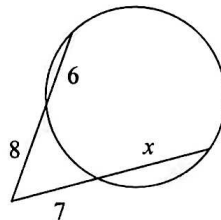
Solve for x . Assume that lines which appear tangent are tangent.

19)



- A) 11 *B) 10
- C) 6 D) 7

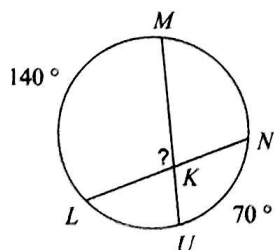
20)



- A) 12 *B) 9
- C) 8 D) 7

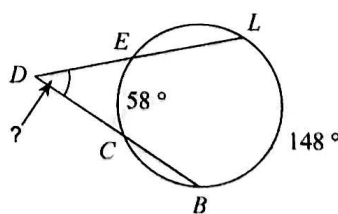
Find the measure of the arc or angle indicated. Assume that lines which appear tangent are tangent.

21)



- A) 96° B) 95°
- *C) 105° D) 145°

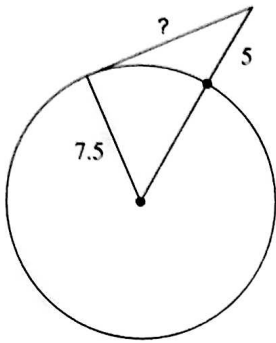
22)



- A) 34° *B) 45°
- C) 67° D) 65°

Find the segment length indicated. Assume that lines which appear to be tangent are tangent.

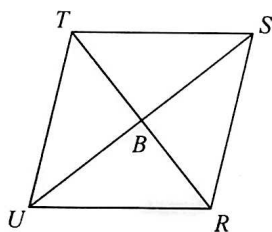
23)



- A) 11.5 B) 12.1
 *C) 10 D) 10.6

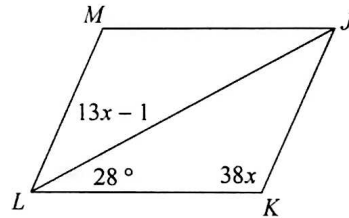
Find the measurement indicated in each parallelogram.

- 24) $TB = 7x + 3$
 $BR = 8x + 1$
 Find TB



- A) 22 B) 21
 C) 13 *D) 17

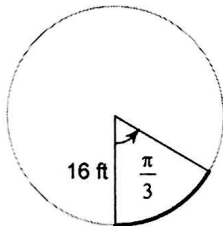
- 25) Find $m\angle M$



- *A) 114° B) 65°
 C) 89° D) 55°

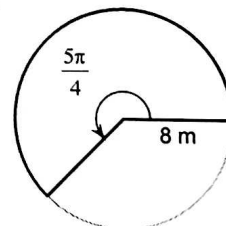
Find the length of each arc. Round your answers to the nearest tenth.

26)



- A) 36191.1 ft *B) 16.8 ft
 C) 134.0 ft D) 804.2 ft

27)

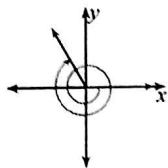


- A) 45238.9 m² B) 47.1 m²
 *C) 125.7 m² D) 103.7 m²

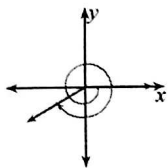
Draw an angle with the given measure in standard position.

28) -660°

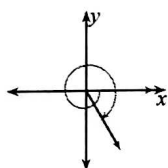
A)



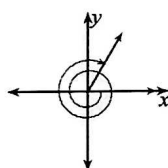
B)



C)

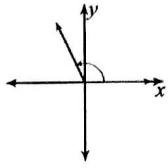


*D)

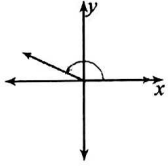


29) 155°

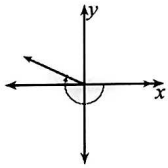
A)



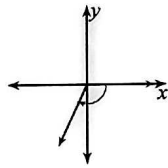
*B)



C)



D)



Convert each degree measure into radians and each radian measure into degrees.

30) $\frac{7\pi}{6}$

A) 185°

B) 245°

C) 420°

*D) 210°

31) 645°

A) $\frac{145\pi}{36}$

B) $\frac{43\pi}{6}$

C) $\frac{113\pi}{36}$

*D) $\frac{43\pi}{12}$

Find a coterminal angle between 0° and 360° .

32) -188°

*A) 172°

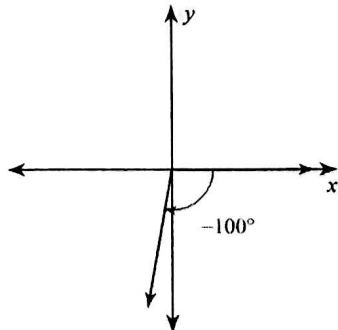
B) 82°

C) 272°

D) 62°

Find the reference angle.

33)



A) 30°

B) 15°

*C) 80°

D) 10°

Find the exact value of each trigonometric function.

34) $\tan 270^\circ$

- A) -1 B) $\frac{\sqrt{2}}{2}$
C) $-\frac{1}{2}$ *D) Undefined

35) $\cos 240^\circ$

- A) $-\frac{\sqrt{3}}{2}$ B) $\sqrt{3}$
C) $\frac{2\sqrt{3}}{3}$ *D) $-\frac{1}{2}$

36) $\sin 135^\circ$

- A) -1 B) $-\frac{1}{2}$
*C) $\frac{\sqrt{2}}{2}$ D) $\frac{\sqrt{3}}{2}$

Using degrees, find the amplitude and period of each function.

37) $y = \frac{1}{4} \cdot \sin(6(\theta - 60)) + 2$

- A) Amplitude: 10
Period: 720°
*B) Amplitude: $\frac{1}{4}$
Period: 60°
C) Amplitude: $\frac{1}{6}$
Period: 2160°
D) Amplitude: 6
Period: 360°