

Math 2C Practice Final - Multiple Choice

C 1. Simplify  $3x^{\frac{1}{2}} \cdot 2x^{\frac{3}{2}} \cdot 2x^0$

a.  $2x^2$   
 b.  $2x^4$   
 c.  $12x^2$   
 d.  $3x^2$

$\frac{1}{2} + \frac{3}{2} = \frac{4}{2}$

A 2. Simplify  $\sqrt{-20}$

a.  $2i\sqrt{5}$   
 b.  $10i$   
 c.  $-5\sqrt{2}$   
 d.  $2\sqrt{5}$

$\sqrt{20}$   
 $\wedge$   
 $4 \cdot 5$   
 $2i\sqrt{5}$

D 3. Simplify  $(3x^4 - 2) - (4 + 5x^2 - x^4)$

a.  $-4x^4 - 5x^2 + 2$   
 b.  $-4x^4 - 5x^2 - 6$   
 c.  $-4x^4 - 10x^2 + 2$   
 d.  $4x^4 - 5x^2 - 6$

$4x^4 - 5x^2 - 6$

A 4. Simplify  $(2r - 1)^2$

a.  $4r^2 - 4r + 1$   
 b.  $8r^2 - 8$   
 c.  $4r^2 + 1$   
 d.  $8r^2 - 16r + 8$

$(2r-1)(2r-1)$   
 $4r^2 - 4r + 1$

B 5. Factor  $16n^2 - 9$

a.  $(4n-3)^2$   
 b.  $(4n+3)(4n-3)$   
 c.  $(-4n+3)(4n-3)$   
 d.  $(4n+1)^2$

$(4n+3)(4n-3)$

D 6. Factor  $2n^2 + 11n - 21$

a.  $(2n+7)(n-3)$   
 b.  $(2n+3)(n-7)$   
 c.  $(2n-3)(n-7)$   
 d.  $(2n-3)(n+7)$

$\begin{matrix} -42 \\ 14 & -3 \\ \hline & 11 \end{matrix}$   
 $2n^2 + 14n - 3n - 21$   
 $2n(n+7) - 3(n+7)$

B 7. Find the x-intercepts  $x^2 + 14x + 48 = 0$  C 8. Solve  $p^2 + 4 = 20$

- a.  $\{7, -3\}$   
 b.  $\{-6, -8\}$   $(x+6)(x+8) = 0$   
 c.  $\{6, 4\}$   
 d.  $\{7, 6\}$   $x = -6, -8$

- a.  $\{2\sqrt{6}, -2\sqrt{6}\}$   
 b.  $\{4\}$   
 c.  $\{4, -4\}$   
 d.  $\{10, -10\}$

$p^2 = 16$

A 9. Solve  $6v^2 + 7v - 2 = 0$

a.  $\left\{ \frac{-7 + \sqrt{97}}{12}, \frac{-7 - \sqrt{97}}{12} \right\}$

b.  $\left\{ \frac{7 + \sqrt{97}}{12}, \frac{7 - \sqrt{97}}{12} \right\}$

c.  $\left\{ \frac{2}{3}, \frac{1}{2} \right\}$

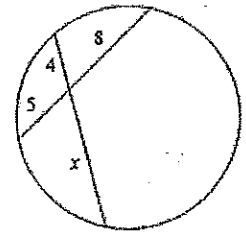
d.  $\left\{ -\frac{1}{2}, -\frac{2}{3} \right\}$

$\frac{-7 \pm \sqrt{49 - 4(6)(-2)}}{12}$

$\frac{-7 \pm \sqrt{97}}{12}$

D 10. Solve for x

- a. 8  
 b. 11  
 c. 9  
 d. 10



$40 = 4x$

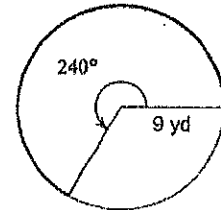
D 11. Given  $g(n) = n^3 + 2n^2$  find  $g(-6)$

- a. 45  
 b. 1  
 c. 16  
 d. -144

$(-6)^3 + 2(-6)^2$

C 12. Find the length of the arc.

- a. 169.6 yd  
 b. 26.2 yd  
 c. 37.7 yd  
 d. 538.8 yd

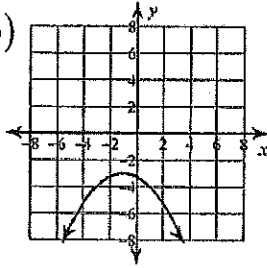


$\frac{240}{360} 18\pi$

B 13. Identify the vertex, axis of symmetry, and min/max value of  $y = -\frac{1}{4}(x-3)^2 + 1$ .

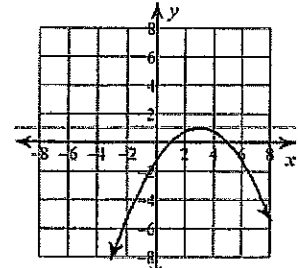
a.

Vertex:  $(-1, -3)$   
 Axis:  $x = -1$   
 Max:  $-3$



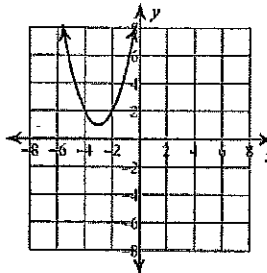
b.

Vertex:  $(3, 1)$   
 Axis:  $x = 3$   
 Max:  $1$



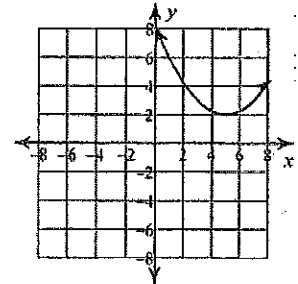
c.

Vertex:  $(-3, 1)$   
 Axis:  $x = -3$   
 Max:  $1$



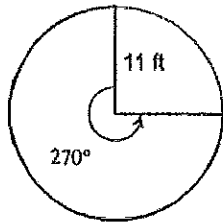
d.

Vertex:  $(5, 2)$   
 Axis:  $x = 5$   
 Max:  $2$



B 14. Find the area of the sector.

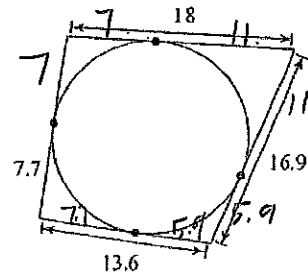
- a.  $8.4 \text{ ft}^2$
- b.  $285.1 \text{ ft}^2$
- c.  $102635.8 \text{ ft}^2$
- d.  $167.6 \text{ ft}^2$



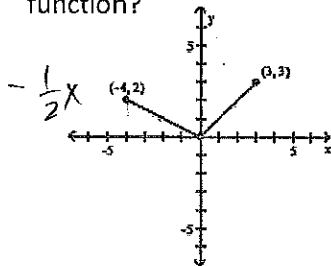
$\frac{270}{360} 12\pi$

C 15. Find the perimeter of the polygon. Assume that lines which appear to be tangent are tangent.

- a. 45.3
- b. 44.8
- c. 63.2
- d. 39.7



C 16. The graph represents which piece-wise function?



- a.  $f(x) = \begin{cases} -\frac{1}{2}x & \text{if } -4 < x < 0 \\ x & \text{if } 0 < x < 3 \end{cases}$
- b.  $f(x) = \begin{cases} -2x & \text{if } -4 < x < 0 \\ x & \text{if } 0 < x < 3 \end{cases}$
- c.  $f(x) = \begin{cases} -\frac{1}{2}x & \text{if } -4 \leq x \leq 0 \\ x & \text{if } 0 < x \leq 3 \end{cases}$
- d.  $f(x) = \begin{cases} \frac{1}{2}x & \text{if } -4 < x < 0 \\ x & \text{if } 0 < x < 3 \end{cases}$

A 17. Find  $p(F|C)$ .

	Friend	Not Friend	Total
Class	74	275	349
No Class	46	1005	1051
Total	120	1280	1400

- a. 0.21
- b. 0.05
- c. 0.62
- d. 0.27

$\frac{74}{349}$

A gumball machine contains 5 pink gumballs, 10 yellow gumballs, and 7 blue gumballs. Find the probability of randomly selecting the following:

A 18. A yellow gumball

- a.  $\frac{5}{11}$
- b.  $\frac{5}{22}$
- c.  $\frac{7}{22}$
- d.  $\frac{10}{11}$

$$\frac{10}{22} = \frac{5}{11}$$

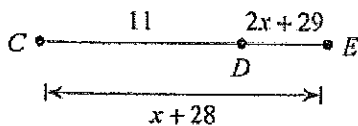
B 19. A blue gumball and then a pink gumball without replacement.

- a.  $\frac{35}{43}$
- b.  $\frac{5}{66}$
- c.  $\frac{4}{7}$
- d.  $\frac{35}{484}$

$$\frac{7}{22} \cdot \frac{5}{21} = \frac{35}{462}$$

D 20. Find a value for  $x$  that would prove the segment addition postulate.

- a. -11
- b. 1
- c. 5

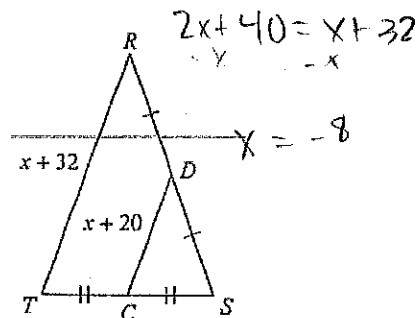


d -12  $11 + 2x + 29 = x + 28$

$$\begin{aligned} 2x + 40 &= x + 28 \\ -x - 40 & \quad -x - 40 \\ \hline x &= -12 \end{aligned}$$

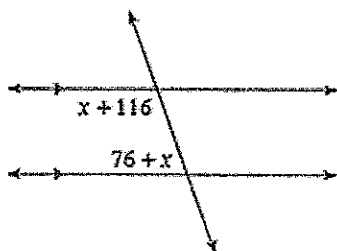
A 21. Solve for  $x$ .

- a. -8
- b. -6
- c. 11
- d. -10



D 22. State the value for  $x$  that proves lines  $u$  and  $v$  are parallel.

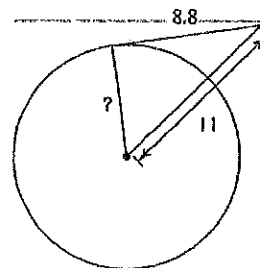
- a. 40
- b. 6
- c. 14
- d. -6



$$2x + 192 = 180$$

C 23. Find the indicated segment length. Assume that lines which appear to be tangent are tangent.

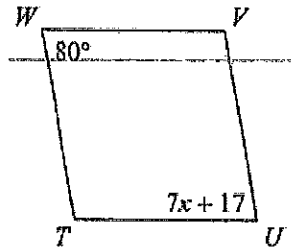
- a. 43.6
- b. 14.1
- c. 6.6
- d. 4.4



$$8.8^2 + x^2 = 11^2$$

$$x^2 = 43.56$$

- D 24. Given a parallelogram, solve for  $x$ .
- 10
  - 1
  - 3
  - 9



$$7x + 17 = 80$$

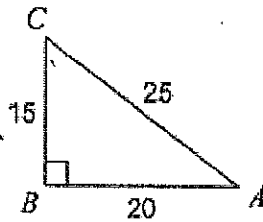
- B 26. Find the value of the trigonometric ratio  $\tan C$ .

a.  $\frac{5}{3}$

b.  $\frac{4}{3}$

c.  $\frac{3}{4}$

d.  $\frac{4}{5}$



$$\tan C = \frac{20}{15} = \frac{4}{3}$$

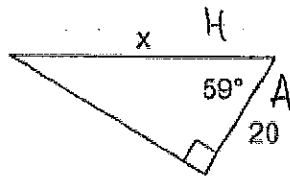
- A 28. Find the missing side. Round to the nearest tenth.

a. 38.8

b. 23.3

c. 21.2

d. 10.3



$$\cos 59 = \frac{20}{x}$$

$$\frac{20}{\cos 59} = 38.8$$

- A 25. State if the triangles are similar. If so, state how you know they are similar and complete the similarity statement

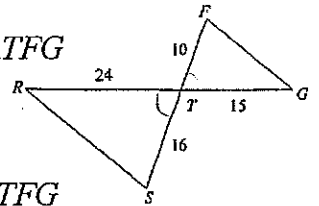
$\Delta TSR \sim \Delta TFG$

a. similar; SAS similarity;  $\Delta TFG$

b. not similar

c. similar; AA similarity;  $\Delta TFG$

d. similar; SSS similarity;  $\Delta TFG$



$$\frac{10}{15} = \frac{16}{24}$$

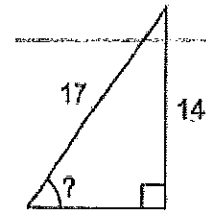
- A 27. Find the measure of the indicated angle to the nearest degree.

a. 55°

b. 35°

c. 33°

d. 51°



$$\sin X = \frac{14}{17}$$

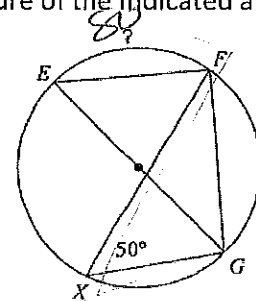
- C 29. Find the measure of the indicated arc.

a. 98°

b. 64°

c. 80°

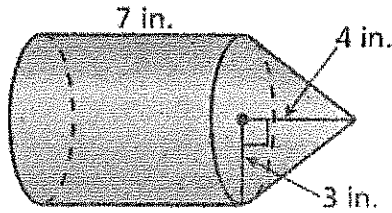
d. 113°



100

D 30. Find the volume. Round to the nearest hundredth, if necessary.

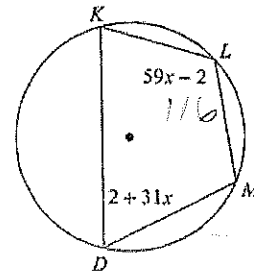
- a.  $254.47 \text{ in}^3$
- b.  $58.90 \text{ in}^3$
- c.  $311.02 \text{ in}^3$
- a  $235.62 \text{ in}^3$



$$\pi 3^2 7 + \frac{1}{3} \pi 3^2 4$$

D 31. Find  $m\angle KDM$

- a.  $57^\circ$
- b.  $70^\circ$
- c.  $95^\circ$
- d  $64^\circ$

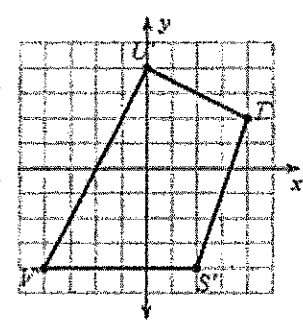
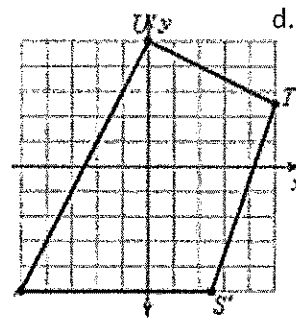
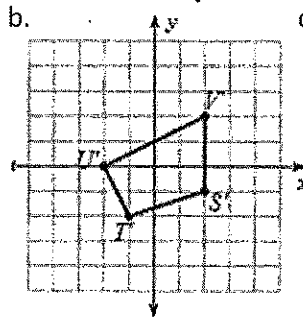
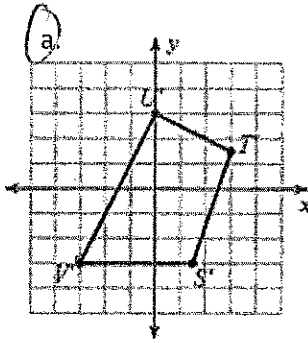
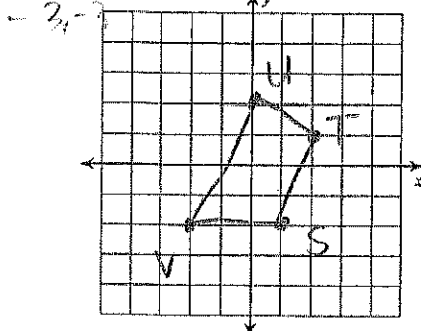


$$90x = 180$$

$$x = 2$$

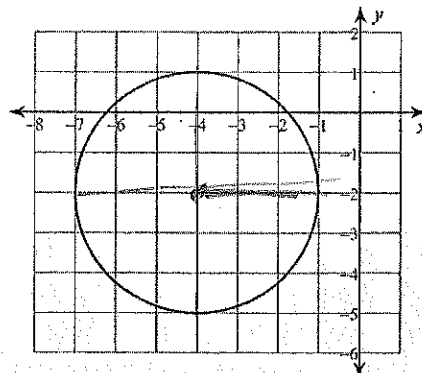
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A 32. Graph the points  $V(-2, -2)$ ,  $U(0, 2)$ ,  $T(2, 1)$ ,  $S(1, -2)$ , the dilate the figure by 1.5



B 33. What is the equation of the circle shown to the right. Use the information provided to write the equation of the circle.

- a.  ~~$(x - 4)^2 + (y - 2)^2 = 9$~~
- b  $(x + 4)^2 + (y + 2)^2 = 9$
- c.  $(x + 4)^2 + (y + 2)^2 = 3$
- d.  ~~$(x - 4)^2 + (y - 2)^2 = 6$~~



$$(-4, -2)$$