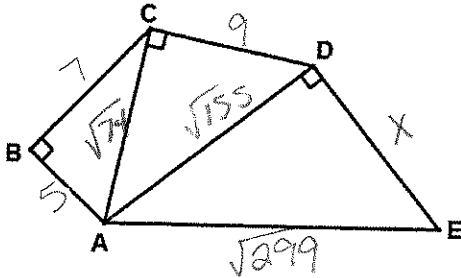


Geometry Review EOC - Part 1

Multiple Choice

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

- B 1. Given: $AB=5$, $BC=7$, $CD=9$, and $AE=\sqrt{299}$. What is the value of DE in this figure?



$$5^2 + 7^2 = x^2$$

$$25 + 49 = x^2$$

$$x^2 = 74$$

$$x = \sqrt{74}$$

$$(\sqrt{74})^2 + 9^2 = x^2$$

$$74 + 81 = x^2$$

$$x^2 = 155$$

$$x = \sqrt{155}$$

$$(\sqrt{155})^2 + x^2 = (\sqrt{299})^2$$

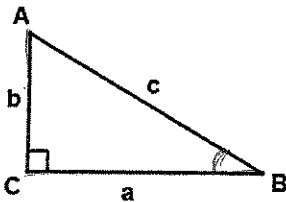
$$155 + x^2 = 299$$

$$x^2 = 144$$

$$x = 12$$

- a. $12\sqrt{3}$ c. $12\sqrt{2}$
 b. 12 d. $\sqrt{155}$

- A 2. In this diagram, the ratio: $\frac{b}{a}$ is equivalent to which trigonometric expression?



$$B = \frac{opp}{adj}$$

SOH
CAH
TOA

- a. $\tan B$ c. $\cos A$
 b. $\cos B$ d. $\sin B$

- D 3. The local newspaper sells ads at a constant rate per square inch. A 3-inch x 6-inch ad costs \$30. Susan has a budget of \$780 to run a 15-inch x 30-inch ad. Can she purchase a 15-inch x 30-inch ad and stay within her budget?

- a. No, because the ad will cost \$4500 c. Yes, because the ad will cost \$450
 b. Yes, because the ad will cost \$150 d. Yes, because the ad will cost \$750

$$3 \times 6 = 30$$

$$15 \times 30 = 450$$

- B 4. A segment has a midpoint at (2,5) and an endpoint at (9,10). What is the location of the other endpoint?

- a. $(\frac{11}{2}, \frac{15}{2})$ c. (16,15)
 b. (-5,0) d. (7,5)

midpoint

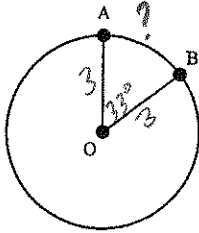
$$\frac{x+x}{2}, \frac{y+y}{2}$$

$$(2,5) = \frac{x+9}{2}, \frac{y+10}{2}$$

$$\frac{x+9}{2} = 2(2) \qquad \frac{y+10}{2} = 5(2)$$

$$x+9 = 4 \qquad y+10 = 10$$

- C 7. Circle O has a radius of 3 cm and $m\angle AOB = 33^\circ$. What is the length, in centimeters, of \widehat{AB} ?



- a. $\frac{11}{180}$
 b. $\frac{120}{11}$

- c. $\frac{11}{20}\pi$
 d. $\frac{11}{40}\pi$

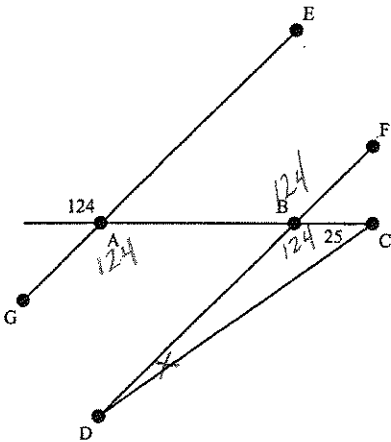
$$\text{Arc length} = \frac{m\widehat{AB}}{360} \cdot 2\pi r$$

$$\text{Arc} = \frac{33}{360} \cdot 2\pi(3)$$

$$\frac{33}{360} \cdot 6\pi$$

$$\frac{198\pi}{360} = \frac{11}{20}\pi$$

- A 8. In the figure, if \overline{GE} and \overline{DF} are parallel, what is $m\angle BDC$?



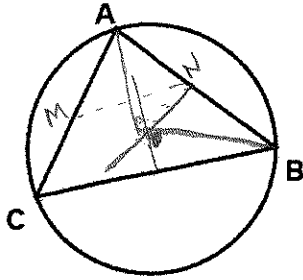
- a. 31
 b. 25

- c. 56
 d. 124

$$\begin{array}{r} 124 \\ - 25 \\ \hline 99 \end{array}$$

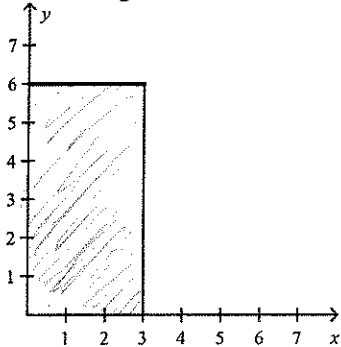
$$\begin{array}{r} 7 \ 10 \\ 180 \\ - 149 \\ \hline 31 \end{array}$$

9. How can Carlos use constructions to find the center of this circle?



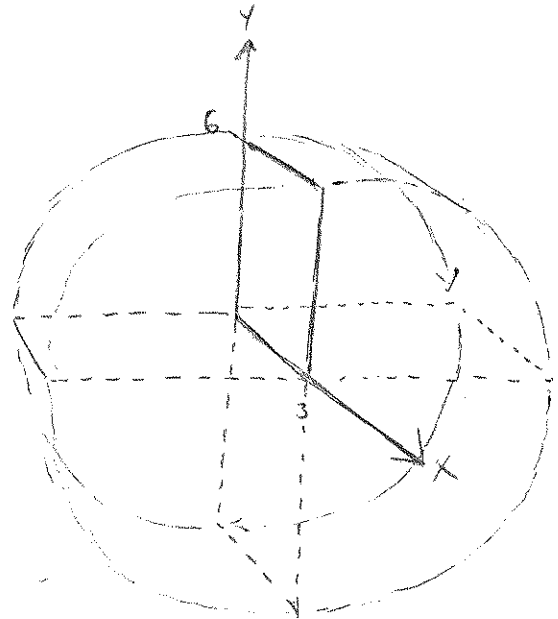
- a. By constructing midsegment \overline{MN} of $\triangle ABC$ parallel to \overline{BC} and finding the midpoint of \overline{MN}
- b. By constructing angle bisectors of angle A and angle B and then finding their intersection
- c. By constructing perpendicular bisectors of \overline{AB} and \overline{BC} and then finding their intersection
- d. By constructing altitudes from C to \overline{AB} and from B to \overline{AC} and then finding their intersection

10. The shaded figure is rotated once about the x-axis. What is the volume, in cubic units, of the resulting solid?



- a. 108π
- b. 36π

- c. 18π
- d. 54π



$$\pi r^2 \cdot h$$

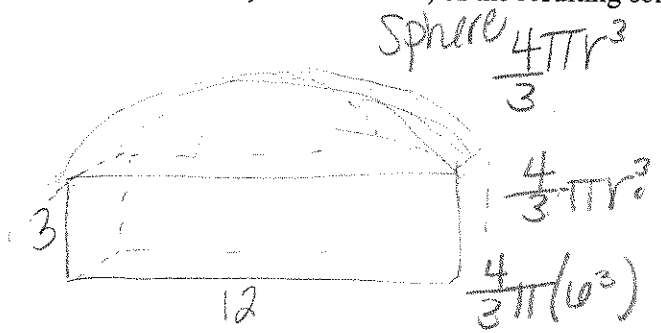
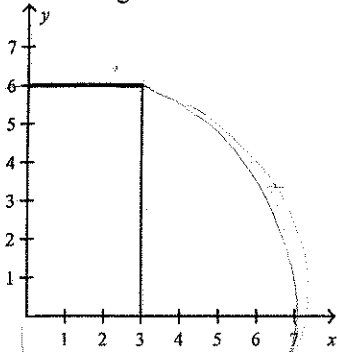
$$\pi 6^2 \cdot 3$$

$$36\pi \cdot 3$$

$$108\pi$$

$$\begin{array}{r} 36 \\ \times 3 \\ \hline 108 \end{array}$$

a * 3. The shaded figure is rotated once about the x-axis. What is the volume, in cubic units, of the resulting solid?

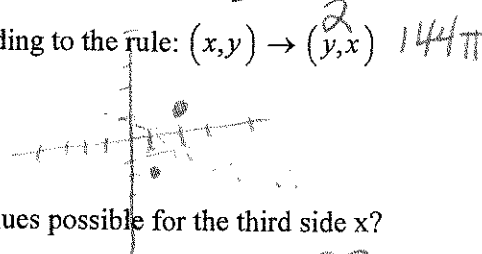


Sphere $\frac{4}{3}\pi r^3$
 $\frac{4}{3}\pi(3^3)$
 $\frac{4}{3}\pi(27)$
 $216\pi \cdot \frac{4}{3}$
 288π

- a. 108π
- b. 36π
- c. 18π
- d. 54π

a 4. A point is in a coordinate grid. The image of that point is transformed according to the rule: $(x,y) \rightarrow (y,x)$. What is the line of symmetry?

- a. $y = x$
- b. $y = 0$
- c. $x = 0$
- d. $y = -x$

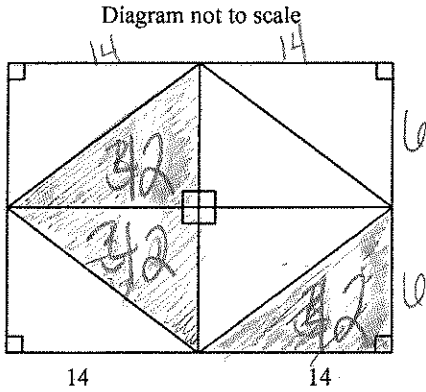


b 5. Given that two sides of a triangle are 15 and 20, what inequality gives the values possible for the third side x?

- a. $15 < x < 25$
- b. $5 < x < 35$
- c. $15 < x < 20$
- d. $10 < x < 20$

$20 - 15 < x < 20 + 15$
 $5 < x < 35$

d 6. Find the shaded area of the compound shape consisting of right triangles and rectangles.



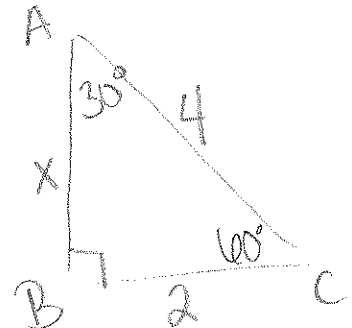
$\frac{1}{2}bh$
 $\frac{1}{2} \cdot 6 \cdot 14$
 $3 \cdot 14$
 42

$\frac{42}{3} = 14$

- a. 252 units^2
- b. 42 units^2
- c. 336 units^2
- d. 126 units^2

7. $\triangle ABC$ has a right angle at B and $m\angle BAC = 30^\circ$. If AC = 4 units long, how many units long is AB?

- a. $2\sqrt{3}$
- b. 6
- c. 3
- d. $4\sqrt{3}$



hyp = 4
 $L = 4 \cdot \frac{\sqrt{3}}{2}$
 $L = 2\sqrt{3}$

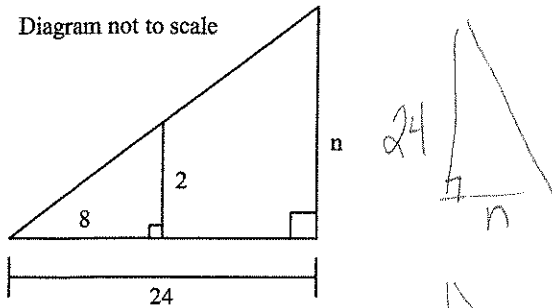
$\frac{4}{2} = x = 2$
 $2 = x$

Geometry EOC Review Part 3

Multiple Choice

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

- 1) Given the diagram below, solve the equation that finds the unknown length.



- A) 3
 B) 6
 C) $\frac{3}{2}$
 D) $\frac{2}{3}$

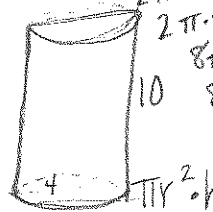
$$\frac{2}{n} = \frac{8}{24}$$

$$8n = 48$$

$$n = 6$$

- 2) What is the surface area and volume of a right cylinder with a radius of 4 and a height of 10 in terms of π ?

- A) $112\pi \text{ units}^2$; $160\pi \text{ units}^3$
 B) $280\pi \text{ units}^2$; $400\pi \text{ units}^3$
 C) $160\pi \text{ units}^2$; $112\pi \text{ units}^3$
 D) $400\pi \text{ units}^2$; $280\pi \text{ units}^3$



$$\frac{80\pi}{112\pi}$$

$$SA = 2\pi r^2 + 2\pi r h$$

$$= 2\pi(4)^2 + 2\pi(4)(10)$$

$$= 32\pi + 80\pi$$

$$= 112\pi$$

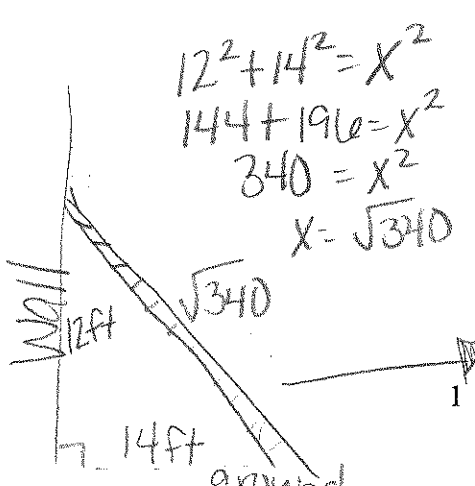
$$V = \pi r^2 h$$

$$= \pi(4)^2(10)$$

$$= 160\pi$$

- 3) Sara places a ladder on level ground against a vertical wall. When the base of the ladder is 14 ft from the wall, the ladder reaches a height of 12 ft along the wall. Sara then moves the base 5 ft closer to the wall. To the nearest tenth of a foot, how high up the wall does the ladder now reach?

- A) 17.7
 B) 18.4
 C) 16.1
 D) 9.0



$$12^2 + 14^2 = x^2$$

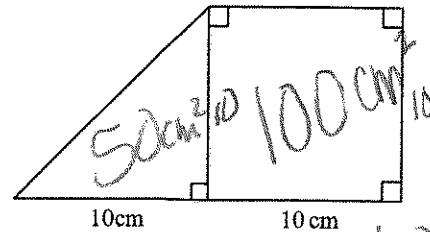
$$144 + 196 = x^2$$

$$340 = x^2$$

$$x = \sqrt{340}$$

$$\frac{14}{5} = \frac{9}{x}$$

- 4) Find the area of the compound shape below consisting of a right triangle and a square.



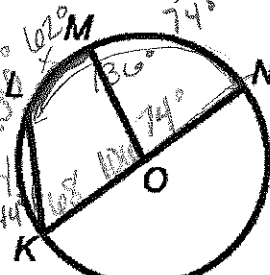
- A) 100 cm^2
 B) 200 cm^2
 C) 150 cm^2
 D) 50 cm^2

$$100$$

$$+ 50$$

$$\hline 150$$

- 5) In circle O, $m\angle MON = 74^\circ$ and \overline{KN} is a diameter. If $m\angle LKN = 68^\circ$, what is the measure of \widehat{LM} ?



- A) 31°
 B) 53°
 C) 62°
 D) 136°

$$\frac{180}{-74}$$

$$\hline 106$$

$$\frac{106}{+74}$$

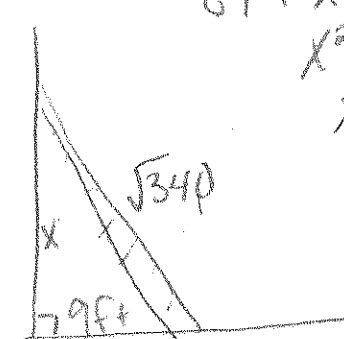
$$\hline 180$$

$$x = 62$$

$$x + 74 = 136$$

$$y + x = 106$$

$$y = 44$$



$$9^2 + x^2 = (\sqrt{340})^2$$

$$81 + x^2 = 340$$

$$x^2 = 259$$

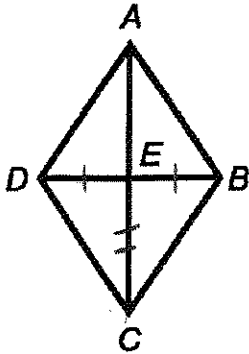
$$x = \sqrt{259}$$

$$x = 16.093$$

- 6) Which theorem would be used last to complete a proof of the following setup? _____

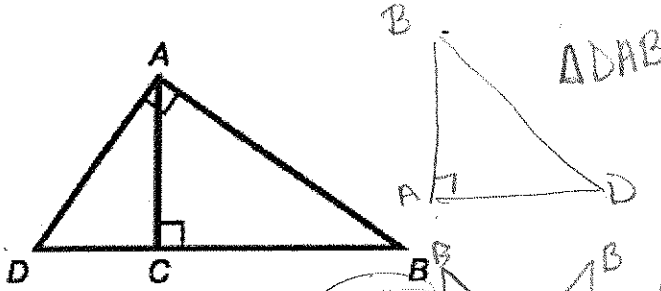
Given: \overline{AC} is the \perp bisector of \overline{DB}

Prove: $AD \cong AB$



- A) CPCTC
- B) HL
- C) AA
- D) SAS

- 7) In this figure, AC is an altitude of right $\triangle DAB$.



Which triangle is similar to $\triangle DCA$?

- A) $\triangle ACD$
- B) $\triangle ADB$
- C) $\triangle BAC$
- D) $\triangle DAB$

- 8) Marie is solving a problem in which angles measuring $(5x)^\circ$ and $(25 + 4x)^\circ$ are supplementary. What is the value of x ?

- A) $\frac{205}{9}$
- B) 205
- C) 155
- D) $\frac{155}{9}$

$$5x + 25 + 4x = 180$$

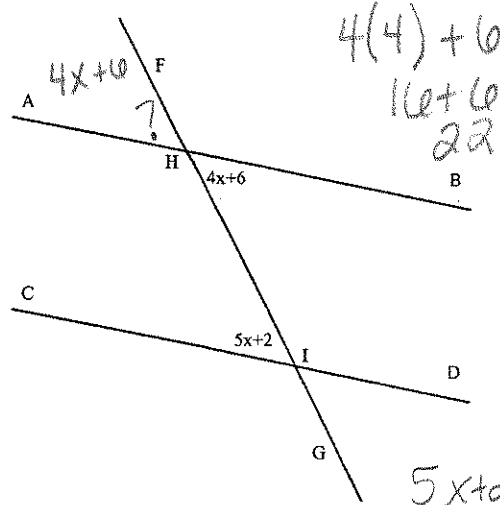
$$9x + 25 = 180$$

$$9x = 155$$

$$\frac{9x}{9} = \frac{155}{9}$$

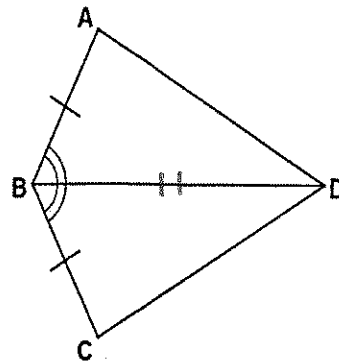
$$x = \frac{155}{9}$$

- 9) In the diagram below (not to scale), AB and CD are parallel and FG is a transversal. What is the measure of $\angle AHF$ using the given degree? Round your answer to the nearest hundredth



- A) 176
- B) 158
- C) 4
- D) 22

- 10) Which congruence statement can be used most directly to prove $\triangle ABD \cong \triangle CBD$?



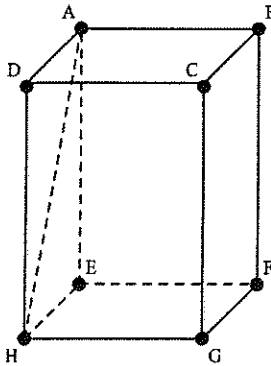
- A) AAS
- B) SAS
- C) HL
- D) SSS

Geometry Final Review - Part 4

Multiple Choice

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

a 1. In this right prism, which of the following 2 line segments are parallel to \overline{AB} ?



- I. \overline{AH}
- II. \overline{EH}
- III. \overline{DC}
- IV. \overline{EF}

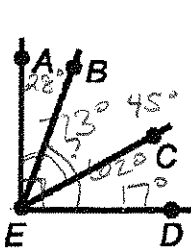
- a. III and IV only
- b. I and II only
- c. II and III only
- d. I and IV only

d

2. Which of the following sets of side lengths can **NOT** form a triangle?
- a. 11 m, 18 m, 10 m $21 > 18$
 - b. 6 inches, 11 inches, 14 inches $2 > 17 > 14$
 - c. 6 units, 10 units, 15 units $10 > 15$
 - d. 5 mm, 9 mm, 2 mm $7 < 9$

B

3. In the figure below, $\angle AED$ is a right angle, $m\angle AEC = 73^\circ$, and $m\angle BED = 62^\circ$. What is $m\angle BEC$?



$$\begin{array}{r} \square \\ 45 \\ + 28 \\ \hline 73 \end{array}$$

$$\begin{array}{r} 62 \\ - 45 \\ \hline 17 \end{array}$$

$$\begin{array}{r} 73 \\ - 45 \\ \hline 28 \end{array}$$

- a. ~~79~~
- b. 45
- c. 17
- d. 28

B 4. A circle has diameter \overline{PQ} with coordinates P(7,5) and Q(3,3). What is the equation of this circle?

- a. ~~$(x-4)^2 + (y-5)^2 = 5$~~
- b. $(x-5)^2 + (y-4)^2 = 5$
- c. $(x+5)^2 + (y+4)^2 = 5$
- d. $(x+4)^2 + (y+5)^2 = 5$

$$d = \sqrt{(x-x)^2 + (y-y)^2}$$

$$(7-3)^2 + (5-3)^2$$

$$4^2 + 2^2$$

$$16 + 4$$

$$d = \sqrt{20}$$

Midpoint = $\frac{x+x}{2}, \frac{y+y}{2}$

$(h,k) = (5,4)$

$$(x-h)^2 + (y-k)^2 = r^2$$

$$(x-5)^2 + (y-4)^2 = 5$$

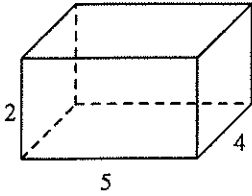
$$\frac{7+3}{2}, \frac{5+3}{2}$$

$$\frac{10}{2}, \frac{8}{2}$$

$$5, 4$$

$$\frac{\sqrt{20}}{2}$$

a 5. Find the volume of the right rectangular prism in *units*³.



$$V = L \cdot W \cdot H$$

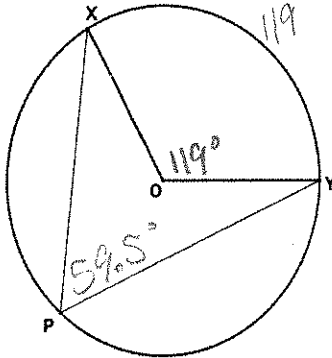
$$2 \cdot 5 \cdot 4$$

$$10 \cdot 4$$

$$V = 40$$

- a. 40
 b. 58
 c. 22
 d. 76

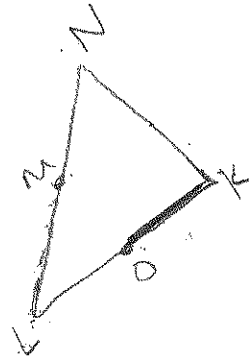
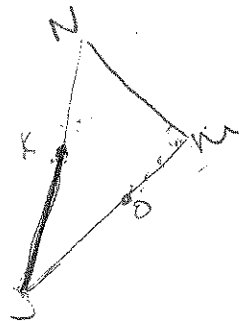
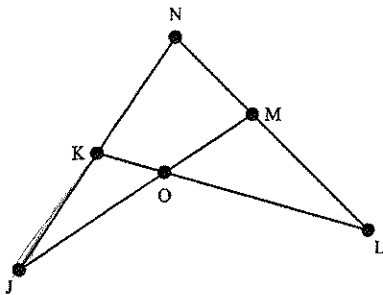
C 6. In circle O, $m\angle XOY = 119^\circ$. What is $m\angle XPY$?



$$119 \div 2 = 59.5$$

- a. 29.75°
 b. 119°
 c. 59.5°
 d. 238°

C 7. Given:
 $\triangle JMN \sim \triangle LKN$



Which proportion is correct?

- a. $\frac{JK}{OK} = \frac{OM}{LM}$
 b. $\frac{JK}{KN} = \frac{NM}{ML}$
 c. $\frac{JK}{OK} = \frac{LM}{OM}$
 d. $\frac{KL}{ML} = \frac{KJ}{MJ}$