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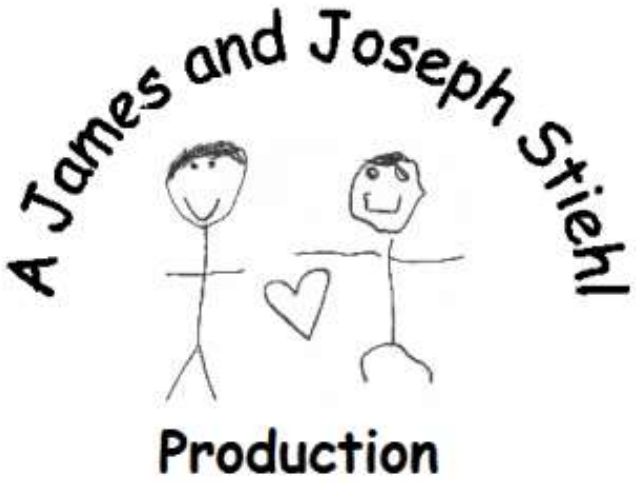
-Presents-

# GEOMETRY

REGENTS EXAM
REVIEW MANUAL

WITH 8 REGENTS EXAMS,
6 TOPICALLY ORGANIZED

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Cover illustration by James A. Stiehl

Printed in the United States of America
ISBN: 978-0-578-19770-8

# Geometry

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# Angle and Segment Relationships

1 In the diagram below, lines $\ell$, $m$, $n$, and $p$ intersect line $r$.

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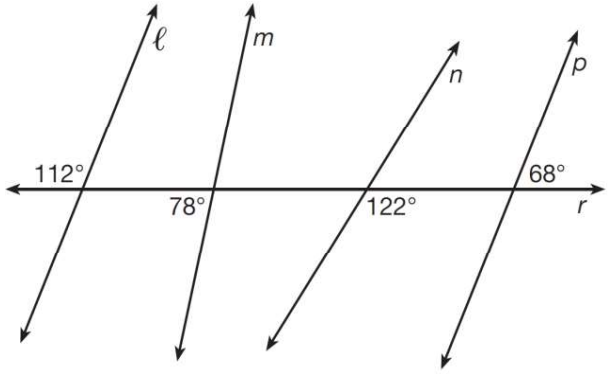



Which statement is true?

1) $\ell \parallel n$ 2) $\ell \parallel p$

3) m $\parallel p$ 4) m $\parallel n$

2. Segment *CD* is the perpendicular bisector of $\overline{AB}$ at *E*. Which pair of segments does *not* have to be congruent?

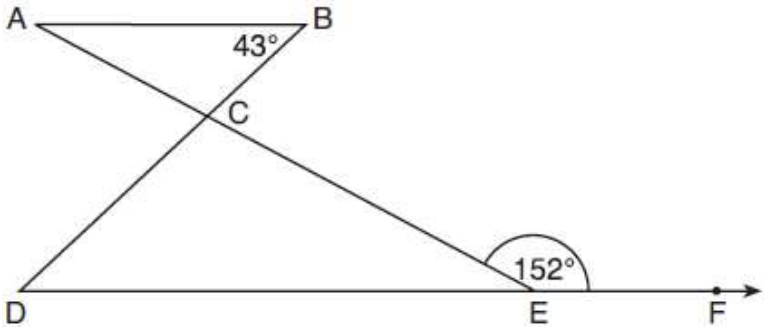
08 2016 11

1) $\overline{AD}, \overline{BD}$ 2) $\overline{AC}, \overline{BC}$

3) $\overline{AE}, \overline{BE}$ 4) $\overline{DE}, \overline{CE}$

3. In the diagram below, $\overline{AB} \parallel \overrightarrow{DEF}$, $\overline{AE}$ and $\overline{BD}$ intersect at *C*, $m\angle B = 43°$, and $m\angle CEF = 152°$.

06 2018 02




Which statement is true?

1) $m\angle D = 28°$
2) $m\angle A = 43°$
3) $m\angle ACD = 71°$
4) $m\angle BCE = 109°$

4. In the diagram below, $\overline{AEFB} \parallel \overline{CGD}$, and $\overline{GE}$ and $\overline{GF}$ are drawn.

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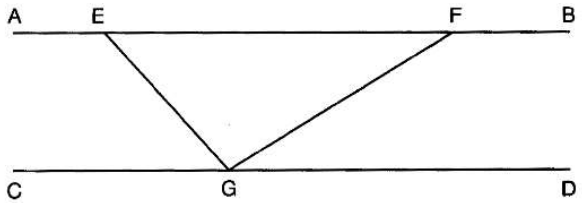



If $m\angle EFG = 32°$ and $m\angle AEG = 137°$, what is the $m\angle EGF$?

(1) 11°
(3) 75°

(2) 43°
(4) 105°

5. The coordinates of the endpoints of directed line segment *ABC* are *A* (–8,7) and *C* (7, –13). If *AB:BC* = 3:2, the coordinates of *B* are

08 2018 15

(1) (1, –5)

(2) (–2, –1)

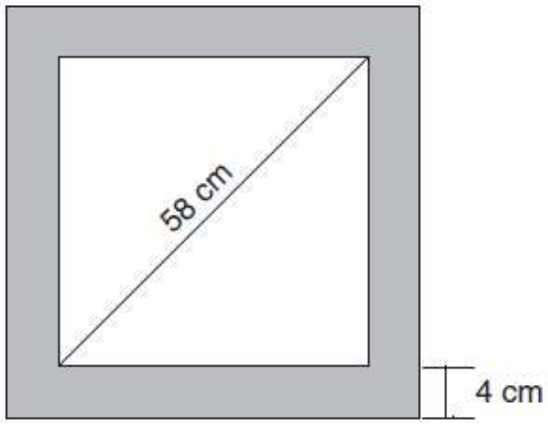
(3) (–3,0)

(4) (3, –6)

# Angle and Segment Relationships in Triangles and Polygons

1. Keira has a square poster that she is framing and placing on her wall. The poster has a diagonal 58 cm long and fits exactly inside the frame. The width of the frame around the picture is 4 cm.

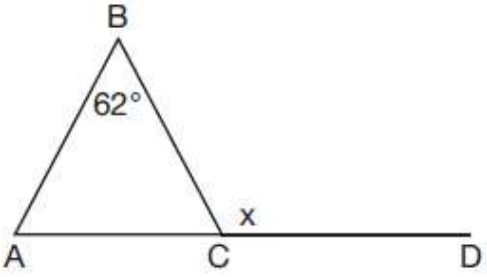
08 2017 34




Determine and state the total area of the poster and frame to the *nearest tenth of a square centimeter*.

2. Given $\triangle ABC$ with $m\angle B = 62°$ and side $\overline{AC}$ extended to *D*, as shown below.

08 2017 11

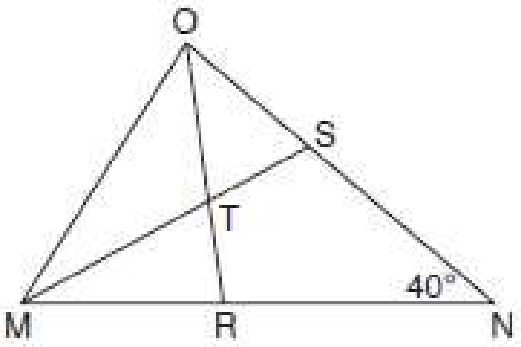



Which value of *x* makes $\overline{AB} \cong \overline{CB}$?

1) 59º
2) 62º
3) 118º
4) 121º

3. In the diagram below of triangle *MNO*, $\angle M$ and $\angle O$ are bisected by $\overline{MS}$ and $\overline{OR}$, respectively. Segments *MS* and $OR$ intersect at *T*, and $m\angle N = 40°$.

06 2017 17

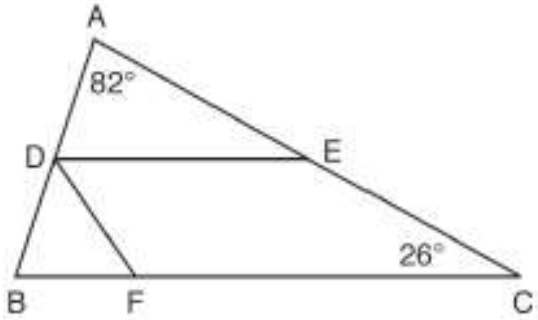



If $m\angle TMR = 28°$, the measure of angle *OTS* is

1) 40º
2) 50º
3) 60º
4) 70º

4. In the diagram below, $\overline{DE}$ divides $\overline{AB}$ and $\overline{AC}$ proportionally, $m\angle C = 26°$, $m\angle A = 82°$, and $\overline{DF}$ bisects $\angle BDE$.

06 2017 10



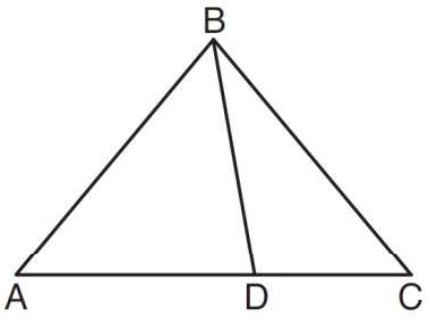

The measure of angle $DFB$ is

1) 36° 2) 54°

3) 72° 4) 82°

5. In the diagram below, $m\angle BDC = 100°$, $m\angle A = 50°$, and $m\angle DBC = 30°$.

08 2016 04




Which statement is true?

1) $\triangle ABD$ is obtuse.
2) $\triangle ABC$ is isosceles.
3) $m\angle ABD = 80°$
4) $\triangle ABD$ is scalene.

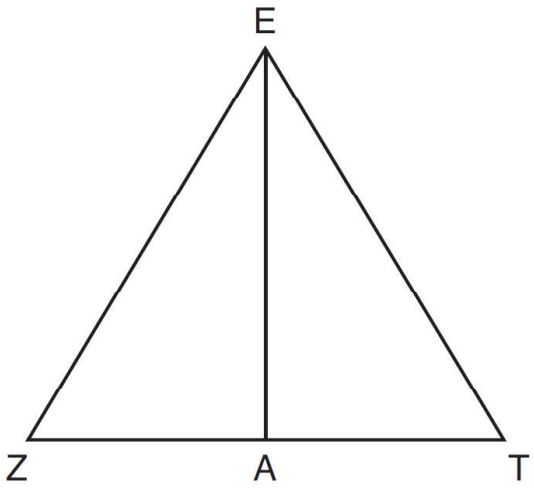
6. An equilateral triangle has sides of length 20. To the *nearest tenth*, what is the height of the equilateral triangle?

08 2016 08

1) 10.0
2) 11.5
3) 17.3
4) 23.1

7. Line segment *EA* is the perpendicular bisector of $\overline{ZT}$, and $\overline{ZE}$ and $\overline{TE}$ are drawn.

06 2016 19

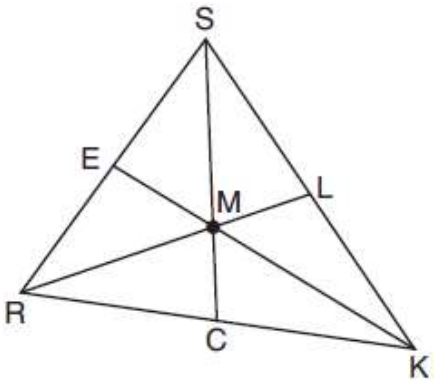



Which conclusion can *not* be proven?

1) $\overline{EA}$ bisects angle *ZET*.
2) Triangle *EZT* is equilateral.
3) $\overline{EA}$ is a median of triangle *EZT*.
4) Angle *Z* is congruent to angle *T*.

8. In triangle *SRK* below, medians $\overline{SC}$, $\overline{KE}$, and $\overline{RL}$ intersect at *M*.

06 2018 18

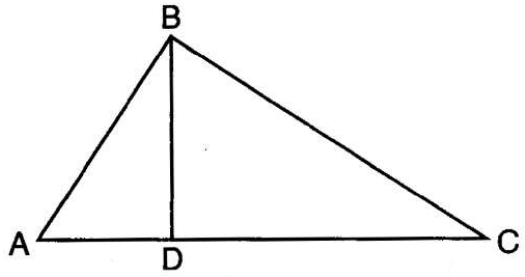



Which statement must always be true?

1) $3(MC) = SC$
2) $MC = \frac{1}{3}(SM)$
3) $RM = 2MC$
4) $SM = KM$

9. In the diagram below of right triangle *ABC,* altitude $\overline{BD}$ is drawn to hypotenuse $\overline{AC}$ .

08 2018 07

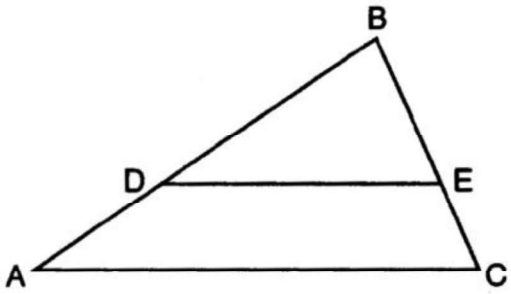



If *BD* = 4, *AD* = *x* – 6, and *CD* = *x,* what is the length of $\overline{CD}$?

(1) 5
(2) 2
(3) 8
(4) 11

10. In triangle *ABC,* points *D* and *E* are on sides $\overline{AB}$ and $\overline{BC}$, respectively, such that $\overline{DE} \parallel \overline{AC}$, and *AD:DB* = 3:5.

08 2018 16




If *DB* = 6.3 and *AC*= 9.4, what is the length of $\overline{DE}$, to the *nearest tenth?*

(1) 3.8

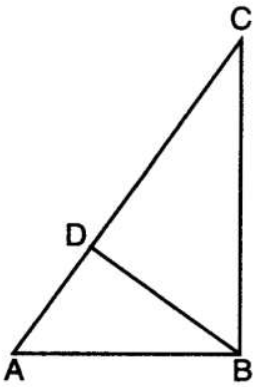
(2) 5.6

(3) 5.9

(4) 15.7

11. In the accompanying diagram of right triangle *ABC,* altitude $\overline{BD}$ is drawn to hypotenuse $\overline{AC}$ .

08 2018 20




Which statement must always be true?

(1) $\frac{AD}{AB} = \frac{BC}{AC}$

(2) $\frac{AD}{AB} = \frac{AB}{AC}$

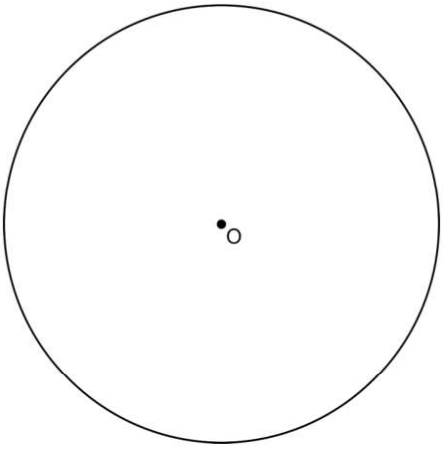
(3) $\frac{BD}{BC} = \frac{AB}{AD}$

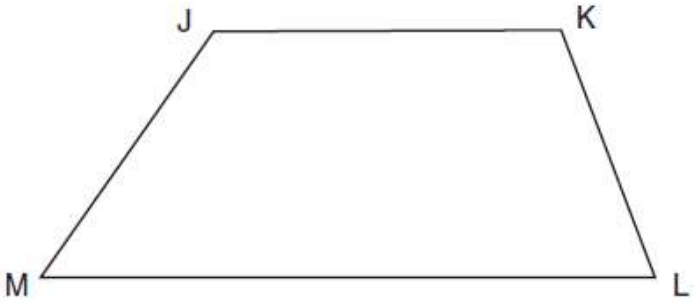
(4) $\frac{AB}{BC} = \frac{BD}{AC}$

# Constructions

1. Using a compass and straightedge, construct a regular hexagon inscribed in circle *O*. [Leave all construction marks.]

08 2017 28




2. Given: Trapezoid *JKLM* with $\overline{JK} \parallel \overline{ML}$
Using a compass and straightedge, construct the altitude from vertex *J* to $\overline{ML}$. [Leave all construction marks.]

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