Math 30
Exam 2 Review
Chapters 3 and 4

*For problems 1–10, answer true or false.*

**1.** Side-side-angle (SSA), angle-angle-angle (AAA), and angle-angle-side (AAS) are three conditions that are not valid reasons for proving congruent triangles.

**2.** The sum of the interior angles of a decagon (10 sides) is 1440°.

**3.** If a triangle has exactly two angles that are congruent, the triangle must be isosceles.

**4.** Using basic construction methods, a 20° angle can be constructed by trisecting a 60° angle.

**5.** It is possible to draw a triangle with sides that measure 11, 17, and 7 units.

**6.** In a parallelogram, the diagonals are perpendicular.

**7.** A kite is a quadrilateral.

**8.** A square is a parallelogram.

**9.** If one interior angle of an isosceles trapezoid is known, the other three angles can be found.

**10.** The diagonal of a rhombus separates it into two equilateral triangles.

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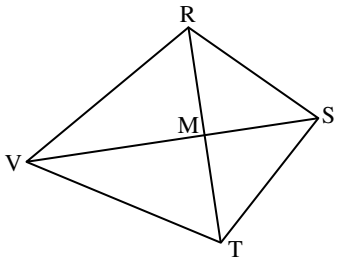
**11.** In isosceles triangle ABC (not shown) $m\angle A = 38°$. List all possible measures of $\angle B$.

**12.** *Given:* kite RSTV
$m\angle RVT = 62°$
$m\angle RST = 86°$

*Find:* $m\angle VRS$

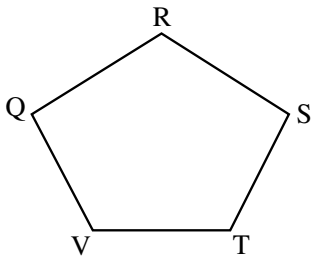
**13.** *Given:* kite RSTV
$\overline{RM} \cong \overline{MS}$
RT = 12 in., VS = 18 in.

*Find:* The perimeter of RSTV
(rounded to nearest tenth)

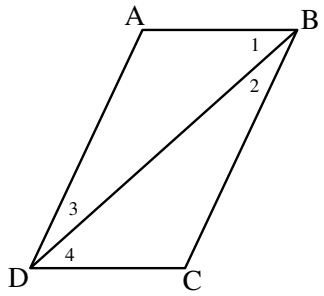


*Problems 12 & 13*

**14.** In the pentagon shown, $m\angle R = m\angle V = m\angle T$, and $m\angle Q = m\angle S = 96°$. Find $m\angle R$.



**15.** In the figure shown, it is given that $\overline{AB} \cong \overline{DC}$ and $\overline{AD} \cong \overline{BC}$. What two statements lead to $\triangle DAB \cong \triangle BCD$?



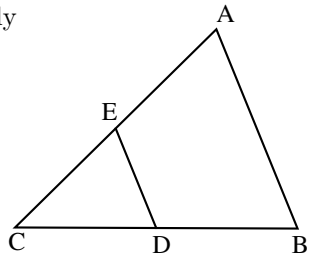

*Problem 15 & 16*

**16.** *Given:* parallelogram ABCD
$m\angle 1 = 40°$
$m\angle 2 = (5 - x)°$
$m\angle C = (15 - 5x)°$

*Find:* $m\angle ADC$

**17.** *Given:* in $\triangle ABC$, $\overline{CA} \cong \overline{CB}$
E & D are midpoints of $\overline{CA}$ & $\overline{CB}$ respectively
$CA = 2x - 4$
$AB = 2x - 5y$
$CB = 3y + 8$
$ED = 2y$

*Find:* $x$ and $y$




**18.** Given $\triangle ABC \cong \triangle XYZ$ (not shown).

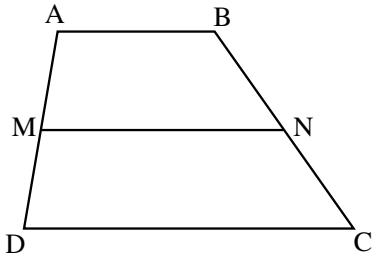
(a) What reason should be given to justify $\overline{BC} \cong \overline{YZ}$?

(b) Can we also say $\triangle BAC \cong \triangle XYZ$?

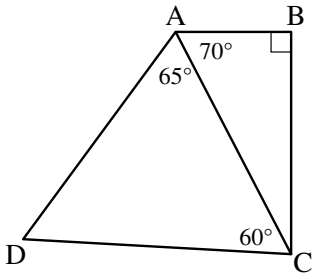
(c) If $m\angle A = 90°$ and $m\angle Y = 30°$, what are $m\angle B$, $m\angle C$, and $m\angle Z$?

**19.** *Given:* Trapezoid ABCD, $\overline{MN}$ is the median
$AB = 7$
$MN = 9$

*Find:* DC



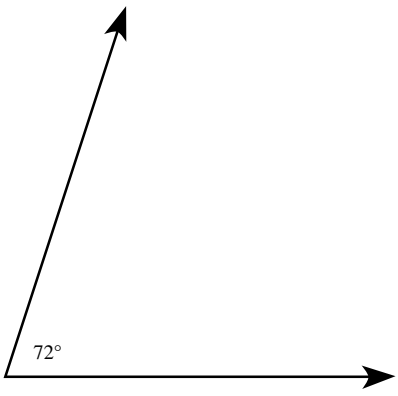

**20.** Without measuring, list the five line segments in quadrilateral ABCD in order of their length, starting with the longest.



**21.** The angle to the right measures 72°, use it for the following constructions

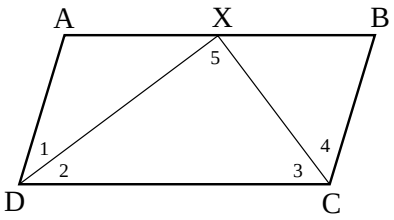
(a) Construct angles of measure 108°, 36°, and 96°.

(b) Construct a regular pentagram



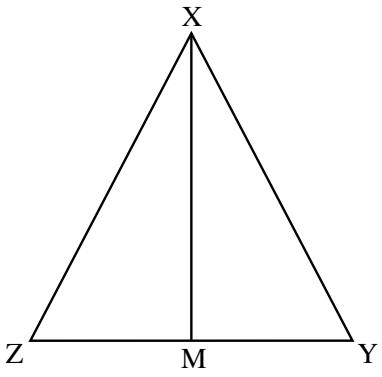

**22.** *Given:* ABCD is a parallelogram, $\overline{DX}$ bisects $\angle ADC$ and $\overline{CX}$ bisects $\angle BCD$

*Prove:* $\angle DXC$ (or $\angle 5$) is a right angle




**23.** *Given:* $\overline{XM} \perp \overline{ZY}$
M is the midpoint of $\overline{ZY}$

*Prove:* $\triangle XYZ$ is isosceles



**Exam 2 Review – Solutions**

**1.** false **2.** true **3.** true **4.** false **5.** true **6.** false **7.** true **8.** true **9.** true **10.** false
**11.** 38°, 104°, and 71° **12.** 106° **13.** about 43.8 inches **14.** 116° **15.** $\overline{DB} \cong \overline{DB}$ by identity and $\triangle DAB \cong \triangle BCD$ by SSS. **16.** 65° **17.** $x = 9, y = 2$ **18.** (a) CPCTC (b) no (c) 30°, 60°, 60°
**19.** DC = 11 **20.** CD, AD, AC, BC, AB