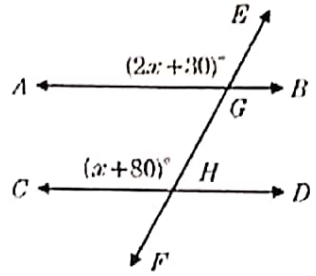
Unit 5 Review - Reasoning with Geometry NAME _____

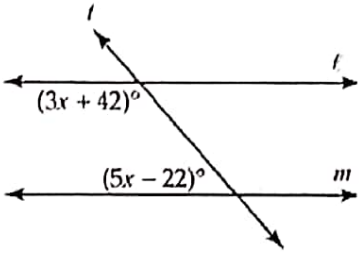
Geometric Properties

1. Find m∠EGA.



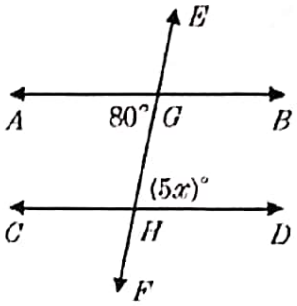
∠EGA = 130°

2. Solve for x.



X = 20

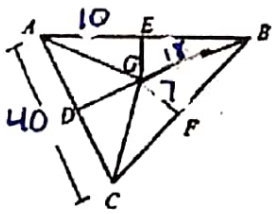
3. Solve for x.



X = 16

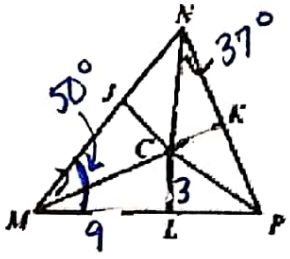
Triangle Centers

4. G is a circumcenter.
$AE = 10$, $AC = 40$, $FG = 7$, and $BG = 18$



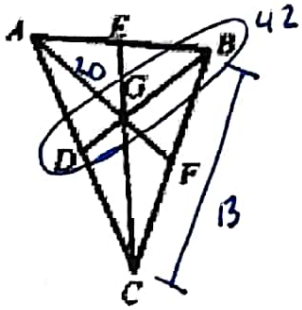
Find:
AD = 20
FC = 16.58
EB = 10
AG = 18
EG = 14.97

5. C is an incenter.
∠LNK = 37°, ∠JML = 50°, $LM = 9$, and $CL = 3$



Find:
m∠CML = 25°
m∠MNP = 74°
m∠NPC = 28°
JC = 3
MC = 9.49

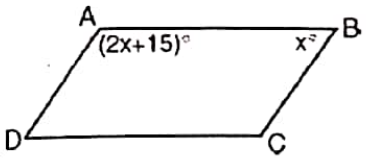
6. G is a centroid.
$AG = 20$, $BC = 13$, and $BD = 42$



Find:
GF = 10
AF = 30
BF = 4.5
BG = 28
GD = 14

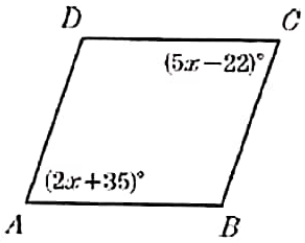
Properties of Parallelograms

7. Find m∠A



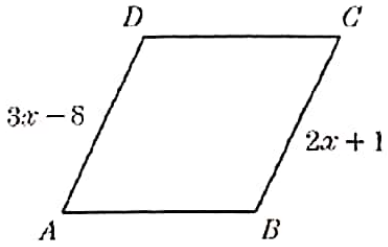
∠A = 125°

8. Solve for x.



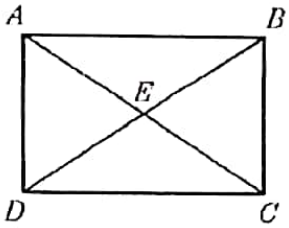
x = 19

9. Find the length of AD.



AD = 19

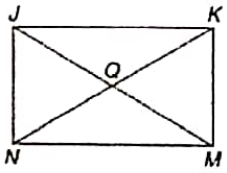
10. Solve for x.
$BD = 8x + 4$ and $BE = 22$



x = 5

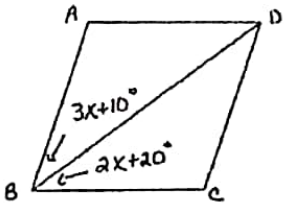
Properties of Rectangles, Rhombuses, and Squares

11. Solve for x. KMNJ is a rectangle.
$KN = 3x + 14$ and $JM = 38$



x = 8

12. ABCD is a rhombus.
Find m∠CBD.



∠CBD = 40°

13. ABCD is a rhombus.
$AB = 14$ and $\angle ABE = 32°$.

Find:

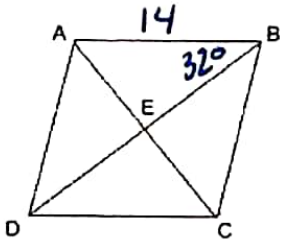
$AD =$ 14

$\angle CBD =$ 32°

$\angle CED =$ 90°

$\angle CAD =$ 58°

$\angle ADC =$ 64°



14. MYSR is a square.
$ME = 10$ and $\angle RYS = 3x + 24$

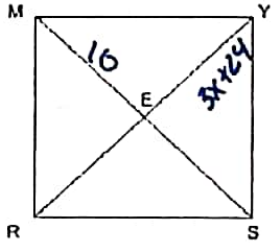
Find:

$x =$ 22

$MS =$ 20

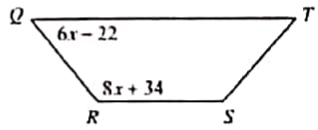
$MR =$ 14.14

$\angle YES =$ 90°



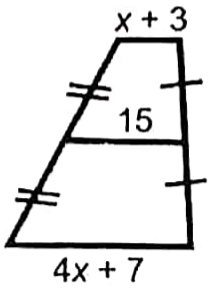
Properties of Trapezoids and Kites

15. Find m∠R. QTSR is a trapezoid.



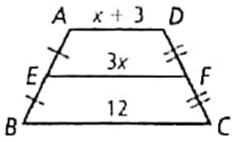
$\angle R = 130^\circ$

16. Solve for x. Figure is a trapezoid.



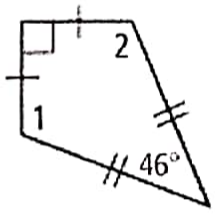
$x = 4$

17. Find the length of AD.



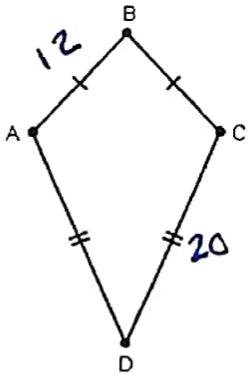
$AD = 6$

18. Find the m∠1 and the m∠2.



$\angle 1 = \angle 2 = 112^\circ$

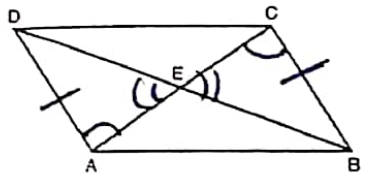
19. Given that AB = 12 and CD = 20, find the perimeter of the kite.



$P = 64$

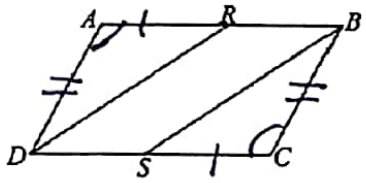
Proofs with Parallelograms

20. Given: ABCD is a parallelogram
Prove: △DEA ≅ △BEC



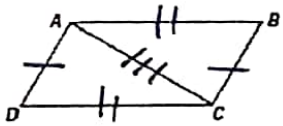
Statement:	Reason:
1. ABCD parallelogram	1. Given
2. $\overline{DA} \cong \overline{CB}$	2. Opp. sides ≅
3. ∠DAC ≅ ∠BCA	3. Alt. int. angles
4. ∠DEA ≅ ∠BEC	4. Vertical angles
5. △DEA ≅ △BEC	5. AAS

21. Given: ABCD is a parallelogram, $\overline{AR} \cong \overline{CS}$
Prove: ∠ADR ≅ ∠CBS



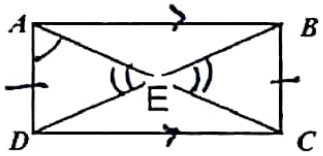
Statement:	Reason:
1. ABCD parallelogram, $\overline{AR} \cong \overline{CS}$	1. Given
2. $\overline{AD} \cong \overline{CB}$	2. Opp. sides ≅
3. ∠DAB ≅ ∠BCD	3. Opp. angles ≅
4. △ARD ≅ △CSB	4. SAS
5. ∠ADR ≅ ∠CBS	5. CPCTC

22. Given: ABCD is a parallelogram
Prove: ∠DAC ≅ ∠BCA



Statement:	Reason:
1. ABCD is a parallelogram	1. Given
2. $\overline{AD} \cong \overline{BC}$	2. Opp sides ≅
3. $\overline{AB} \cong \overline{DC}$	3. Opposite sides of parallelogram are congruent.
4. $\overline{AC} \cong \overline{AC}$	4. Reflexive property
5. △DAC ≅ △BCA	5. SSS
6. ∠DAC ≅ ∠BCA	6. CPCTC

23. Given: ABCD is a rectangle
Prove: △ADE ≅ △BCE



Statement:	Reason
1. ABCD rectangle	1. Given
2. $\overline{AD} \cong \overline{BC}$	2. Opp. sides ≅
3. $\overline{AB} \parallel \overline{DC}$	3. Def. of parallelogram
4. ∠DAE ≅ ∠BCE	4. Alternate interior angles
5. ∠AED ≅ ∠BEC	5. Vertical angles
6. △ADE ≅ △BCE	6. AAS