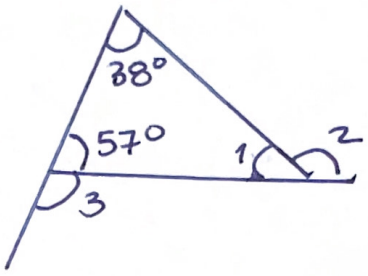
LESSON 24 - BOARD PROBLEMS

① 

$m\angle 1 =$ ____
$m\angle 2 =$ ____
$m\angle 3 =$ ____

SIMPLIFY

② $\frac{3}{\sqrt{5}} =$

③ $\frac{4\sqrt{6}}{\sqrt{8}} =$

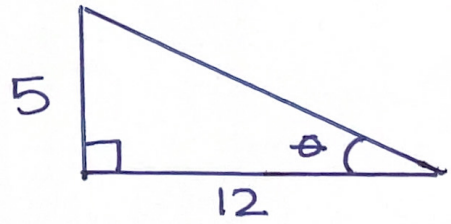
④ write what SOH-CAH-TOA MEANS.

USE IT TO FIND.

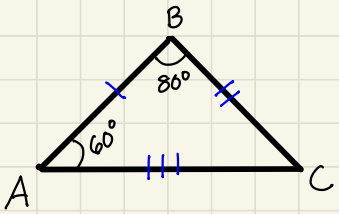
$\sin\theta =$ ____

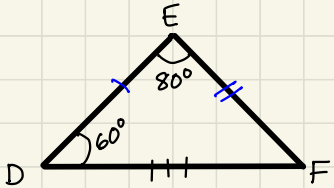
$\cos\theta =$ ____

$\tan\theta =$ ____



Ch. 24 - Triangle Congruence, SSS, SAS



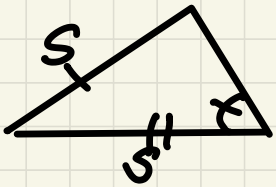


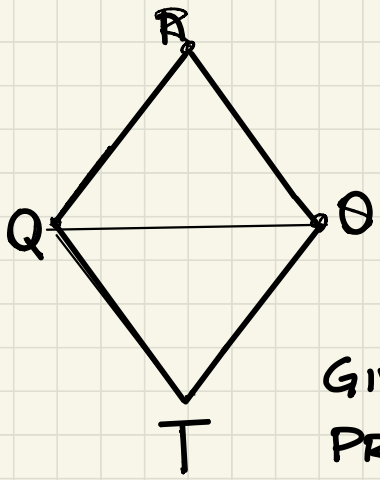
CONGRUENT TRIANGLES

TWO TRIANGLES WHOSE 3 _____ and 3 _____ are congruent.

SSS

SAS





FIGURE

MARK YOUR FIGURES!

EACH PROOF WILL HAVE:

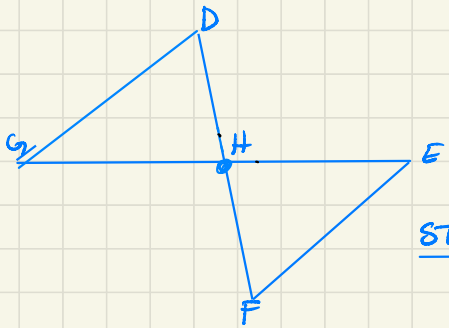
1) FIGURE
2) GIVEN INFO
3) OBJECTIVE of Proof

GIVEN: QRST is a Rhombus

PROVE: $\triangle QRS \cong \triangle QTS$

STATEMENTS	REASONS

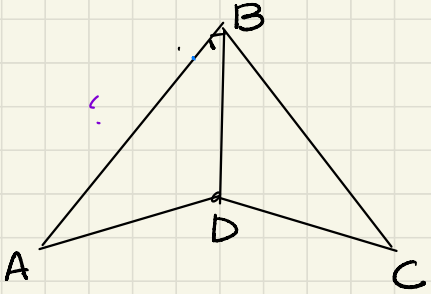
PROVE



GIVEN: H is the MIDPOINT OF $\overline{DF}$ & $\overline{GE}$

PROVE: $\triangle DGH \cong \triangle FEH$

STATEMENTS	REASONS



GIVEN: $\overline{BD}$ bisects $\angle ABC$

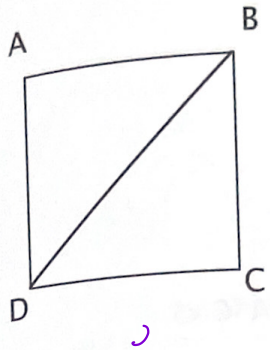
$\overline{AB} \cong \overline{CB}$

PROVE: $\triangle ABD \cong \triangle CBD$

STATEMENTS	REASONS

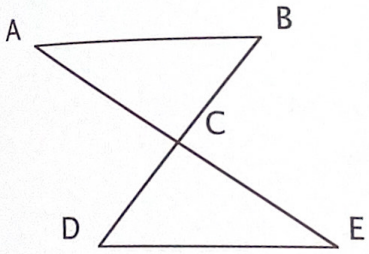
LESSON PRACTICE

Complete the following proofs using SSS or SAS postulates.



Given: ABCD is a square.
Prove: $\Delta ABD \cong \Delta CDB$

STATEMENTS	REASONS
ABCD is a square.	1. _____
$\overline{AB} \cong \overline{DC}$	2. _____
$\overline{AD} \cong \overline{BC}$	definition of a square
$\overline{BD} \cong \overline{BD}$	3. _____
$\Delta ABD \cong \Delta CDB$	4. _____



Given: $\overline{AB} \cong \overline{ED}$
C is the midpoint of $\overline{BD}$.
$\overline{AB} \parallel \overline{DE}$

Prove: $\Delta ABC \cong \Delta EDC$

STATEMENTS	REASONS
$\overline{AB} \cong \overline{ED}$	5. _____
C is the midpoint of $\overline{BD}$.	6. _____
$\overline{BC} \cong \overline{DC}$	definition of midpoint
$\angle ABC \cong \angle EDC$	7. If 2 $\parallel$ lines are cut by a _____, the alternate interior angles are _____.
$\Delta ABC \cong \Delta EDC$	8. _____ postulate

LESSON PRACTICE

Factor each polynomial and check by multiplying.

1. $X^2 - 6X + 8$

2. $X^2 - 18X + 80$

3. $X^2 - 8X + 15$

4. $X^2 - 9X + 20$

5. $X^2 - 10X + 9$

6. $X^2 - 4X + 3$

7. $X^2 - 16X + 55$

8. $X^2 - 20X + 96$

9. $X^2 - 13X + 42$

10. $X^2 - 11X + 24$

11. $X^2 + 2X - 3$

12. $X^2 + 3X - 18$

13. $X^2 - X - 20$

14. $X^2 + 2X - 15$

15. $5X^2 + 9X - 2$

16. $4X^2 + 7X - 2$

Build a rectangle and find the factors.

1. $X^2 - 3X - 10 = (\quad - \quad)(\quad + \quad)$

2. $X^2 + 3X - 4 = (\quad - \quad)(\quad + \quad)$

Build a rectangle and find the area (product).

3. $(X - 3)(X - 9) =$

4. $(X - 3)(X - 3) =$

5. Find the factors: $X^2 + X - 2$.

6. Check #5 by multiplying the factors to find the product.

7. Find the factors: $X^2 + 3X - 10$.

8. Check #7 by multiplying the factors to find the product.

9. Find the factors: $2X^2 + 7X + 3$.

10. Check #9 by multiplying the factors to find the product.

Simplify each expression.

11. $3^4 \times 3^{-2} \div 3^3 =$

12. $\dfrac{7^{-10}}{7^5} =$

13. $\dfrac{A^5B^2A^{-4}}{A^3B^7} =$

Simplify each term, then add like terms.

14. $2AB^{-2} + \dfrac{4B^{-1}}{B^{-1}A^{-1}} + \dfrac{3A^2}{B^2A^1} =$

15. $3Y = 2X + 7$ and $Y = -4X$. Solve for both X and Y using substitution.

16. Find three consecutive odd integers such that seven times the second, plus two times the first, minus six times the third, equals negative one.

17. Twelve coins made up of nickels and dimes have a value of $.95. How many are there of each coin?

18. Solve: two-thirds divided by five-sixths times one-half.

19. Solve for X: $.2X - .02X + 1.4 = 2.09$

20. 5 1/2 % of 400 = (*Hint:* Change the percent to a decimal before solving.)

Build a rectangle and find the factors.

1. $X^2 - X - 2 = (\quad - \quad)(\quad + \quad)$

2. $X^2 + 2X - 3 = (\quad - \quad)(\quad + \quad)$

Build a rectangle and find the area (product).

3. $(X - 3)(X + 9) =$

4. $(X - 5)(X + 6) =$

5. Find the factors: $X^2 - 3X - 4$.

6. Check #5 by multiplying the factors to find the product.

7. Find the factors: $X^2 - 2X - 3$.

8. Check #7 by multiplying the factors to find the product.

9. Find the factors: $X^2 - X - 6$.

10. Check #9 by multiplying the factors to find the product.

Simplify each expression.

11. $(10^2)^7 =$

12. $\left[(5^2)^4\right]^3 =$

13. $\dfrac{D^{-4}D^3D^{-2}}{D^4D^{-5}} =$

Simplify each term, then add like terms.

14. $BB^2 + \dfrac{3B^{-1}}{B^{-4}} + \dfrac{5B^4}{B^{-1}} =$

15. $Y = -4X + 5$ and $2Y = 4X - 3$. Solve for X and Y.

16. Find three consecutive integers such that four times the second, plus three times the third, minus eight times the first, plus eleven, equals zero.

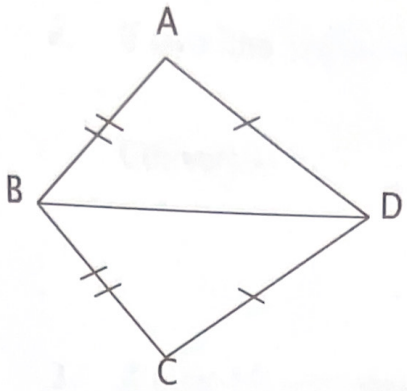
17. Forty-five coins made up of nickels and dimes have a value of $3.30. How many are there of each coin?

18. Solve: one-half divided by one-half times three-fourths.

19. Solve for X: $1.03X + .2X - .73X = .45$

20. $5\frac{2}{5}\%$ of 250 =

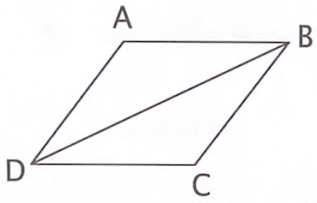
(*Hint:* Change the percent to a decimal before solving)



Given: $\overline{AB} \cong \overline{CB}$
$\overline{AD} \cong \overline{CD}$

Prove: $\Delta ABD \cong \Delta CBD$

STATEMENTS	*REASONS*
9. _____ ≅ _____	13. _____
10. _____ ≅ _____	14. _____
11. _____ ≅ _____	reflexive
12. _____ ≅ _____	SSS postulate



Given: ABCD is a rhombus
Prove: $\Delta ABD \cong \Delta CDB$

STATEMENTS	*REASONS*
15. _____	given
16. _____	definition of a rhombus
17. _____	definition of a rhombus
18. _____	reflexive property
19. _____	SSS postulate