Geometry A – Chapter 1 Final Review Practice

Name: **KEY**   Date: _____   Hour: _____

Section 1.1 Identify Points, Lines, and Planes

Use the diagram to answer the following questions.

TRUE or FALSE

1. Points **A**, **B** and **C** are collinear.   _F_

2. Points A and B are collinear.   _T_

3. Points C, B, and D are collinear.   _F_

4. Points A, B, and E are coplanar.   _T_

5. Points **A, B,** and **C** are coplanar.   _T_ (not on plane F, but are 3 noncollinear pts)

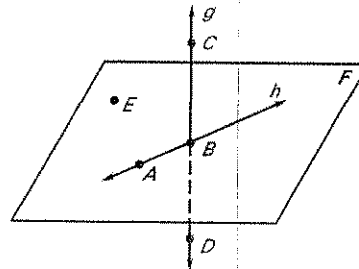6. Another name for plane F is **ABE**.   _T_

7. The intersection of two planes is a line.   _T_

8. The intersection of two lines is a point.   _T_

Section 1.2 Use Segments and Congruence
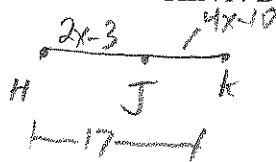
9. M is the midpoint of the segment. Find XY.

$$4x - 10 = 2x - 2$$
$$2x = 8$$
$$x = 4$$
$$XM = 6$$

$$\boxed{XY = 12}$$

Segment: X —— $4x-10$ —— M —— $2x-2$ —— Y

10. Let J be between H and K on $\overline{HK}$. Use the Segment Addition Postulate to solve for x.
Then find HJ and JK.   HINT: Draw a picture and label it.

$HJ = 2x - 3$
$JK = 4x - 10$
$KH = 17$

$$2x - 3 + 4x - 10 = 17$$
$$6x - 13 = 17$$
$$6x = 30$$
$$x = 5$$

$x =$ **5** $HJ =$ **7** $JK =$ **10**

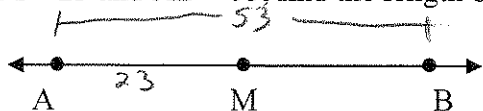11. The notation for the length of the segment between S and T is **C**.

     A. $\angle ST$ B. $\overline{ST}$ C. ST D. $\overrightarrow{ST}$

1

12. If AM = 23 and AB = 53, find the length of $\overline{MB}$.

$\boxed{30}$

A $\overset{23}{}$ M   B

Section 1.3 Use Midpoint and Distance Formulas

13. Find the coordinates of the midpoint of the segment with the given endpoints.
    $R(3, 4)$ and $S(-9, -4)$ midpt. $\left(\dfrac{3+(-9)}{2}, \dfrac{4+(-4)}{2} \right) = \boxed{(-3, 0)}$

14. What is the distance between points C(–4, 5) and D(2, –1).

$d = \sqrt{(-4-2)^2 + (5-(-1))^2}$

$= \sqrt{(-6)^2 + 6^2} = \sqrt{36+36} = \sqrt{72} = \boxed{6\sqrt{2}}$

Section 1.4 Measure and Classify Angles

15. If $\angle X \cong \angle Y$ and $m\angle Y = 65°$, then what is $m\angle X$? $\boxed{65°}$

16. The measure of $\angle R$ is 100°. Classify $\angle R$ as

    A. acute $\boxed{\text{B. obtuse}}$ C. right   D. straight

17. The measure of $\angle T$ is 89°. Classify $\angle T$ as
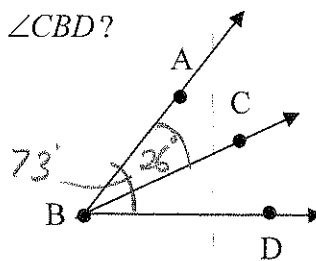
    $\boxed{\text{A. acute}}$ B. obtuse   C. right   D. straight

18. If $m\angle ABC = 26°$ and $m\angle ABD = 73°$, the what is the measure of $\angle CBD$?

$73 - 26 = \boxed{47°}$
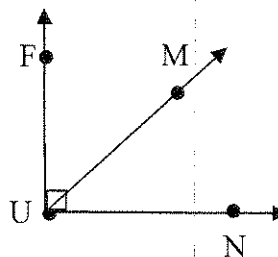
19. If $\angle FUM$ is acute and $\angle FUN$ is right, then $\angle MUN$ is what kind of angle?

    $\boxed{\text{A. acute}}$ B. obtuse

    C. right   D. straight

2

Section 1.5 Describe Angle Pair Relationships

For questions 20 – 23 refer to the figure at the right.

20. What type of angle pair is $\angle 1$ and $\angle 2$? *Supplementary*

21. What type of angle pair is $\angle 1$ and $\angle 3$? *Vertical*

22. What type of angle pair is $\angle 2$ and $\angle 4$? *Vertical*

23. If $m\angle 1 = 5x + 110$ and $m\angle 2 = 10x + 40$, then solve for x.
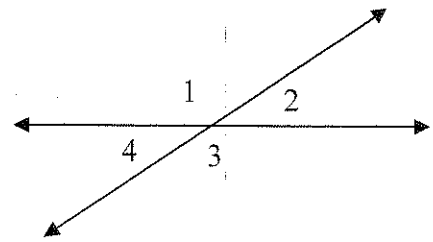
$$(5x + 110) + (10x + 40) = 180 \qquad 15x = 30$$
$$15x + 150 = 180 \longrightarrow \boxed{x = 2}$$

24. If $\angle A$ and $\angle B$ are complementary and $m\angle A = 20°$, then $m\angle B = \underline{70°}$.

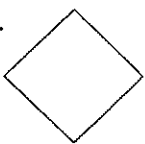25. If $\angle C$ and $\angle D$ are supplementary and $m\angle C = 50°$, then $m\angle D = \underline{130°}$.

26. If $\angle E$ and $\angle F$ form a linear pair and $m\angle E = 60°$, then $m\angle F = \underline{120°}$.

Section 1.6 Classify Polygons

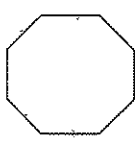27. Classify the polygon.

A.   B.   C.   D.
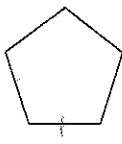
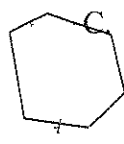*quadrilateral   octagon   pentagon   hexagon*

Match the vocabulary with the correct definition. Write the correct letter in the blank.

28. _D_   hexagon   A. 3 sided polygon.

29. _B_   quadrilateral   B. 4 sided polygon.

30. _F_   octagon   C. 5 sided polygon.

31. _E_   heptagon   D. 6 sided polygon.

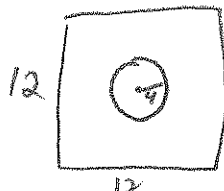32. _A_   triangle   E. 7 sided polygon.
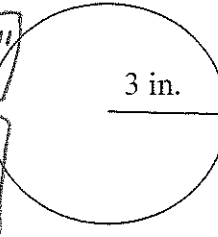
33. _C_   pentagon   F. 8 sided polygon.

3

Section 1.7 Find Perimeter, Circumference, and Area

34. Your parents ask you to mow the lawn. It is a square plot that is 12 ft on each side and it has a circle cement fountain in the center that has a radius of 4 ft. What is the area of the lawn that you will mow?

$$A_\square - A_\circ$$
$$12^2 - \pi 4^2$$
$$144 - 16\pi \approx 93.73 \text{ ft}^2$$
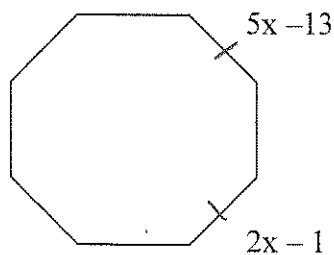
35. Find the circumference and area of the circle.

$$C = 2\pi r = 2\pi 3 = 6\pi \approx 18.85''$$
$$A = \pi r^2 = \pi 3^2 = 9\pi \approx 28.27 \text{ in}^2$$

3 in.

36. You are cutting out a triangular shape. The triangle is 7 inches in height and has a base of 6 inches. What is the area of the triangular shape?

$$A = \frac{1}{2} bh$$
$$= \frac{1}{2}(6)(7) = 21 \text{ in}^2$$

37. Find the perimeter of the regular octagon.
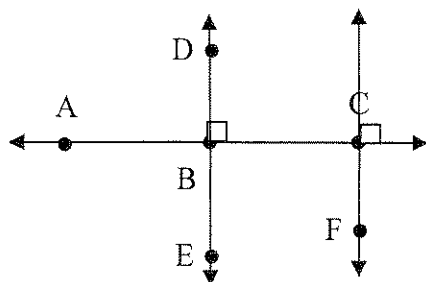
$$5x - 13 = 2x - 1$$
$$3x = 12$$
$$x = 4$$

Side length $= 2(4) - 1 = 7$

Perimeter $= 8 \cdot 7 = 56$

5x − 13

2x − 1

Section 2.4: Use Postulates and Diagrams

Use this diagram to answer the next questions as **True** or **False**.

10. Points *A*, *B*, *D*, and *C* are coplanar. T
11. ∠*EBA* is a right angle. T
12. Points *E*, *B*, and *D* are collinear. T
13. $\overleftrightarrow{FC} \perp \overleftrightarrow{AB}$ T
14. ∠*ABD* and ∠*EBC* are vertical angles. T
15. $\overleftrightarrow{AB}$ contains *C*. T
16. $\overleftrightarrow{FC}$ and $\overleftrightarrow{DE}$ intersect. F
17. ∠*ABD* and ∠*CBD* are congruent angles. T
18. m∠*ABD* + m∠*CBD* = 180°. T
19. ∠*ABD* and ∠*CBD* are adjacent angles. T
20. ∠*ABD* and ∠*CBD* are supplementary angles. T
21. ∠*ABD* and ∠*CBD* are a linear pair. T
22. ∠*ABD* ≅ ∠*BCF*. T
23. m∠*ABE* = 90°. T
24. Perpendicular lines always form right angles. T

Match the postulate illustrated by the diagram.

A. Through any two points there exists there exists exactly one line.
B. Through any three noncollinear points there exists exactly one plane.
C. If two lines intersect, then their interaction is exactly one point.
D. If two points lie in a plane, then the line containing them lies in the plane.
E. If two planes intersect, then their intersection is a line.
F. A line contains at least two points.
G. A plane contains at least three noncollinear points.

25. If [then] F

26. If [then] D

27. If [then] B

28. If [then] G
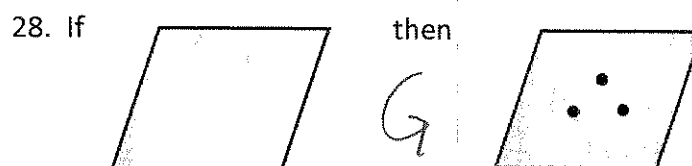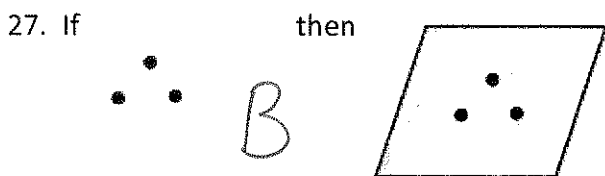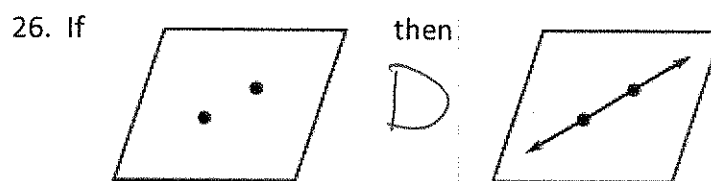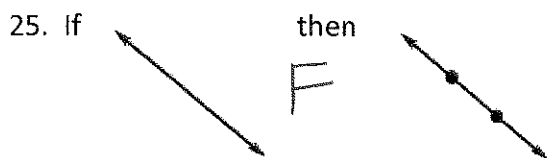
Section 2.5: Reason Using Properties from Algebra & Section 2.6: Using congruence Theorems

Name the property that justifies the conclusion or statement.

29. Given: $8x - 34 = 6$
    Conclusion: $8x = 40$

30. Given: $-2x = 14$
    Conclusion: $x = -7$

31. Given: $x - 12 = 42$
    Conclusion: $x = 54$

32. Given: $4(m + 1)$
    Conclusion: $4m + 4$

33. If $\angle 1 \cong \angle 2$ and $\angle 2 \cong \angle 4$, then $\angle 1 \cong \angle 4$.

34. $\overline{XY} \cong \overline{XY}$

35. If $\angle CDE \cong \angle RST$, then $\angle RST \cong \angle CDE$.

36. If $RZ = 4$ and $RZ + ST = 9$, then $4 + ST = 9$.

37. $\angle A \cong \angle A$

38. If $AB = CD$ and $CD = EF$, then $AB = EF$.

Section 2.6: Prove Statements about Segments and Angles

Match a reason for each step of the proof.

39. **GIVEN:** $m\angle 1 = m\angle 3$
    PROVE: $m\angle BED = m\angle AEC$

    A. Addition Property of Equality
    B. Angle Addition Postulate
    C. Given
    D. Substitution Proper of Equality
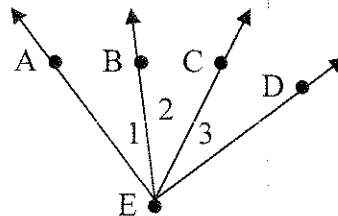
| Statements	Reasons
1. $m\angle 3 = m\angle 1$	1. C
2. $m\angle 3 + m\angle 2 = m\angle 1 + m\angle 2$	2. A
3. $m\angle 3 + m\angle 2 = m\angle BED$	3. B
4. $m\angle 1 + m\angle 2 = m\angle AEC$	4. B
5. $m\angle BED = m\angle AEC$	5. D

Section 2.7: Prove Angle Pair Relationships

40. (True) or False — Vertical angles are always congruent.
41. (True) or False — Right angles are always congruent.
42. (True) or False — Linear pair angles are always adjacent.
43. True or (False) — Supplementary angles are always adjacent.
44. True or (False) — Complementary angles are always adjacent.
45. True or (False) — All birds can fly.

Geometry A – Chapter 3 Final Review Practice

Section 3.1 Identify Pairs of Lines and Angles

Use the cube to the right to answer the following questions.
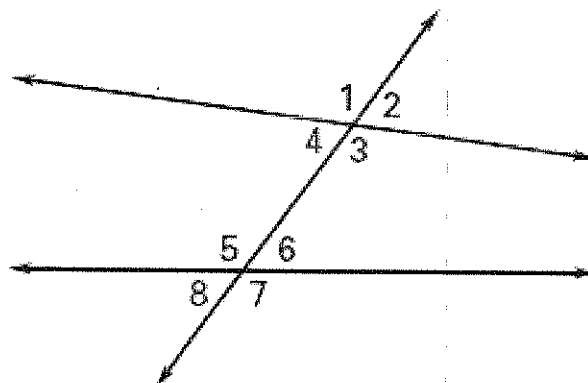(parallel, perpendicular, or skew).

1. $\overleftrightarrow{WZ}$ and $\overleftrightarrow{WQ}$ are what type of lines?   Perpendicular

2. $\overleftrightarrow{WZ}$ and $\overleftrightarrow{RS}$ are what type of lines?   Skew

3. $\overleftrightarrow{WZ}$ and $\overleftrightarrow{QR}$ are what type of lines?   Parallel
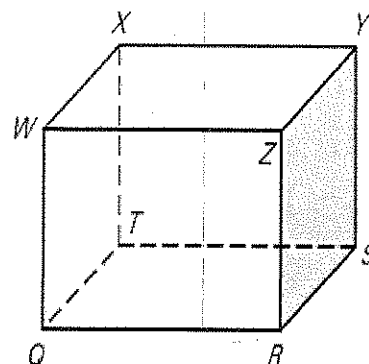
Use the diagram to complete the next six statements with:

    A. Corresponding Angles   B. Alternate Interior Angles
    C. Alternate Exterior Angles   D. Consecutive Interior Angles

4. $\angle 1$ and $\angle 7$ C

5. $\angle 4$ and $\angle 6$ B

6. $\angle 3$ and $\angle 6$ D

7. $\angle 2$ and $\angle 6$ A

8. $\angle 1$ and $\angle 5$ A

9. $\angle 2$ and $\angle 8$ C

Section 3.2 Use Parallel Lines and Transversals

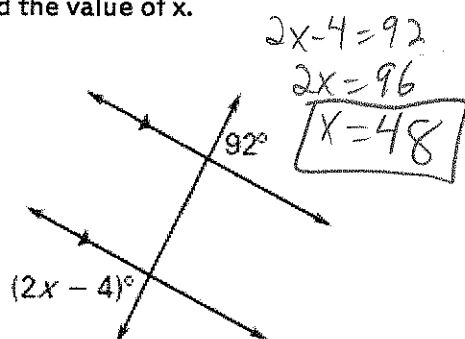Use the figure to the right to find the measure of each angle.

10. $m\angle 1 = 65$

11. $m\angle 5 = 115$

12. $m\angle 2 = 115$

13. $m\angle 6 = 65$

14. $m\angle 3 = 65$

15. $m\angle 7 = 65$
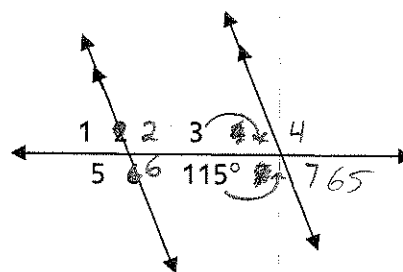
Section 3.2 Use Parallel Lines and Transversals (continued)

Find the value of x.

$2x - 4 = 92$
$2x = 96$

16.

$\boxed{X = 48}$

$(2x - 4)°$

$92°$

17.

$X + X + 20 = 180$
$2x = 160$
$\boxed{X = 80}$

m

$(x + 20)°$

n

$x°$
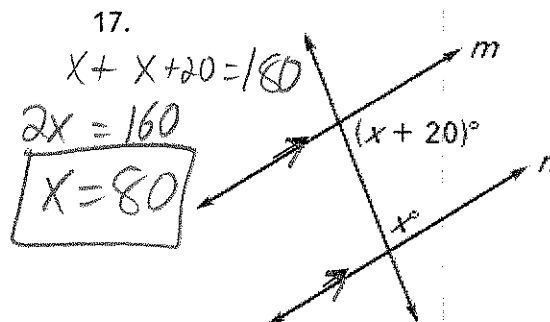
Use the diagram below and the given information to determine if $m \parallel n$, $p \parallel q$, or *neither*.

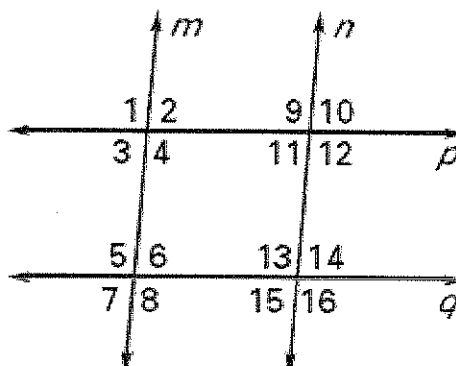18. $\angle 2 \cong \angle 11$ $m // n$

19. $\angle 1 \cong \angle 8$ $p // q$

20. $\angle 10 \cong \angle 14$ $p // q$

21. $\angle 2 \cong \angle 10$ $m // n$

m n

| 1 | 2 | | 9 | 10 |
| 3 | 4 | | 11 | 12 | p

| 5 | 6 | | 13 | 14 |
| 7 | 8 | | 15 | 16 | q

Section 3.3 Prove Lines are Parallel

Use the given angle measures to decide whether lines *a* and *b* are parallel for the next two questions.

22. $m\angle 3 = 86°$, $m\angle 6 = 94°$ $\boxed{Not //}$

23. $m\angle 1 = 63°$, $m\angle 6 = 117°$ $\boxed{a // b}$

a 1 2
      3 4

b 5 6
      7 8
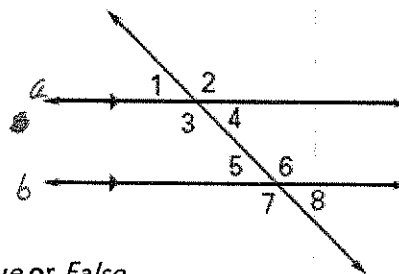
Use the diagram above to answer the following questions as *True* or *False*.

(assume a // b)

24. $\angle 4$ and $\angle 6$ are supplementary angles?

T

25. $\angle 2$ and $\angle 7$ are congruent angles?

T

26. $\angle 3$ and $\angle 6$ are not congruent angles?

F

27. $\angle 3$ and $\angle 5$ are congruent angles?

F

Name _____ Date: _____ Hour _____

Section 3.4 Find and Use Slope of Lines

28. Find the slope of the line that passes through the points (2, 5) and (7, 3). Then state the slope of the line parallel and perpendicular to the calculated slope. $M = \frac{5-3}{2-7} = \boxed{\frac{2}{-5}}$

$\boxed{\dfrac{2}{-5}}$ $\boxed{\dfrac{5}{2}}$

29. Find the slope of the line that passes through the points (–3, 1) and (0, 3). Then state the slope of the line parallel and perpendicular to the calculated slope. $\frac{1-3}{-3-0} = \frac{-2}{-3} = \boxed{\frac{2}{3}}$

$\boxed{\dfrac{2}{3}}$ $\boxed{\dfrac{-3}{2}}$

Section 3.5 Write and Graph Equations of Lines

30. Are lines $y = 2x + 5$ and $y = -\dfrac{1}{2}x - 3$ *parallel,* $\boxed{\textit{perpendicular,}}$ or *neither?*

31. What would the slope of a line be that was *perpendicular* to $y = -\dfrac{1}{5}x + 2$? $\boxed{m = 5}$

32. What would the slope of a line be that was *parallel* to $4x + 2y = 8$?

$\dfrac{2y}{2} = \dfrac{-4x + 8}{2}$

$y = -2x + 4$ $\boxed{M = -2}$

33. Write an equation in slope-intercept form that passes through the point (0, 7) and has a slope of $\dfrac{1}{2}$.

$\boxed{y = \frac{1}{2}x + 7}$

y-intercept

34. Write an equation in slope-intercept form that passes through the point (1, 5) and has a slope of 2.

$y = 2x + b$

$5 = 2(1) + b$

$3 = b$ $\boxed{y = 2x + 3}$

35. Write an equation in slope-intercept form that is *parallel* to $y = \dfrac{3}{4}x - 2$ and passes through point (0, 0)

$y = \dfrac{3}{4}x + 0$

$\boxed{y = \frac{3}{4}x}$

y-intercept

36. Write an equation in slope-intercept form that is *perpendicular* to $y = \dfrac{1}{2}x + 4$ and passes through point (2, 1).

$y = -2x + b$

$1 = -2(2) + b$

$1 = -4 + b$ $b = 5$ $\boxed{y = -2x + 5}$

Section 3.6 Prove Theorems about Perpendicular Lines

37. **True or False.** If two lines are perpendicular to the same transversal, then they are parallel.
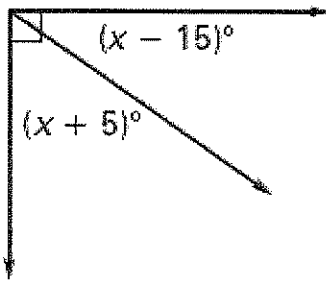
38. **True or False.** If two lines are perpendicular, then they intersect to form two right angles.

False   four

Find the value of x.
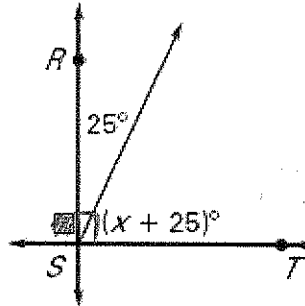
39.

$(x - 15)°$

$(x + 5)°$

$(x - 15) + (x + 5) = 90$

$2x - 10 = 90$

$2x = 100$

$\boxed{X = 50}$

40.

R

$25°$

$(x + 25)°$

S T

$25 + x + 25 = 90$

$x + 50 = 90$

$\boxed{x = 40}$

Geometry A – Chapter 4 Final Review Practice

Section 4.1 Apply Triangle Sum Properties

For problems # 1 – 4 , classify the triangle by its side lengths or angles.

1. no congruent sides **Scalene**

2. Angles measures: 25°, 130°, 25° **Obtuse**

3. Angles measures: 60°, 60°, 60° **equiangular**

4. Side lengths: 10cm, 10cm, 10cm **equilateral**

Find the value of x.

5.

$4x+5x=90$
$9x=90$
$x=10$

$4x°$

$5x°$

6.

$2x+3x+55=180$
$5x=125$
$x=25$

$3x°$

$2x°$ 55°

7.

$2x+76=5x-2$
$78=3x$
$26=x$

B

$2x°$

$76°$ $(5x-2)°$

A C D

8. Find $m\angle DBC$.

$50+90=$
$140°$

D

50°
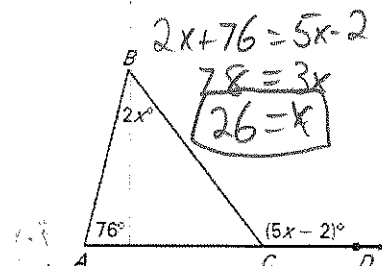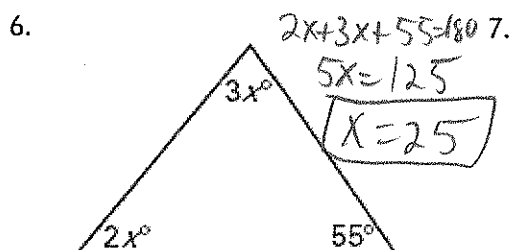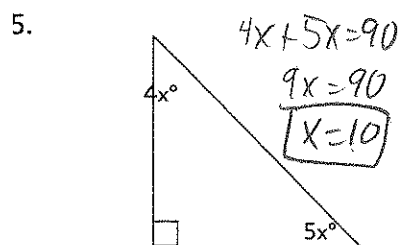
A B C

9. Find the value of x.

$50+70=$ **$120°$**

$x°$

50°   70°
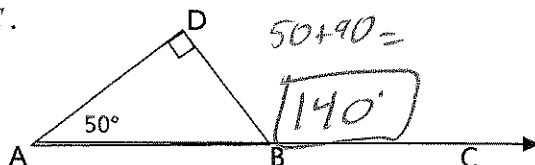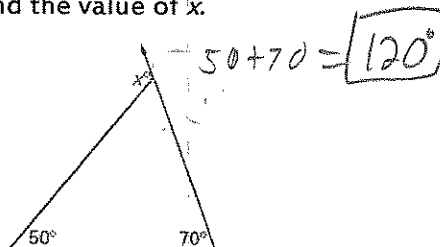
Section 4.2 Apply Congruence and Triangles

Given, $\triangle ABC \cong \triangle DEF$. Complete the statement.

10. $\overline{EF} \cong$ **$\overline{BC}$**

11. $\angle A \cong$ **$\angle D$**

12. $\angle E \cong$ **$\angle B$**

13. $m\angle C =$ **$\angle F$**

14. $\overline{AC} =$ **$\overline{DF}$**

15. $\triangle CBA \cong$ **$\triangle FED$**

Write the correct congruence statement for these triangles.

16. $\triangle$ **PSL** $\cong \triangle$ **LNP**

L N

S P
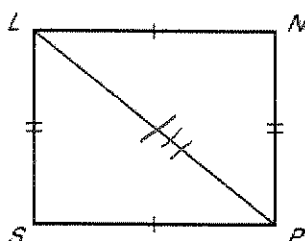
Name _____ Date: _____ Hour _____

<u>Sections 4.3 to 4.5 Prove Triangle Congruence by SSS, SAS, HL, ASA, AAS &</u>
<u>Use Congruent Triangles (CPCTC)</u>

Using the diagrams, choose the appropriate postulate or theorem that proves triangle congruence:

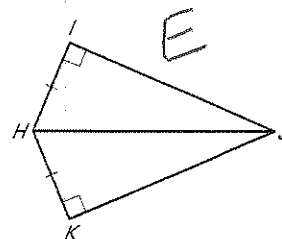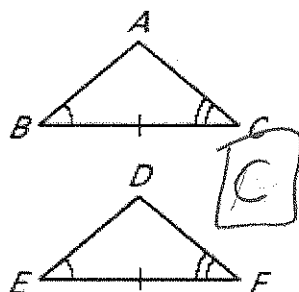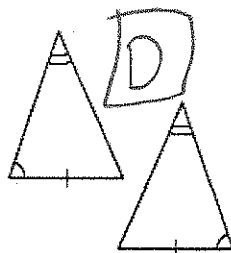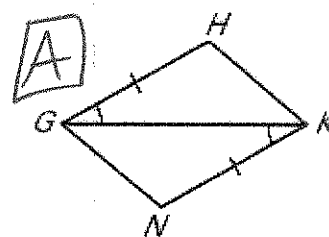A. SAS   B. SSS   C. ASA   D. AAS   E. HL

17.

B

18.

C

19.

20.

C

21.

D

22.
A

23.

D

24.

E

25.

B
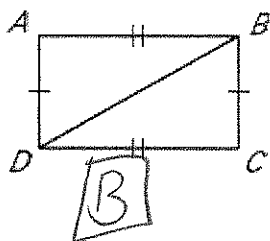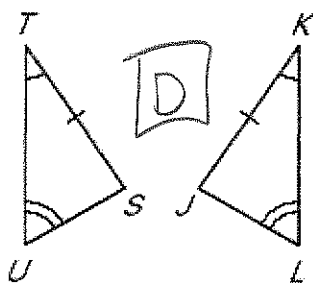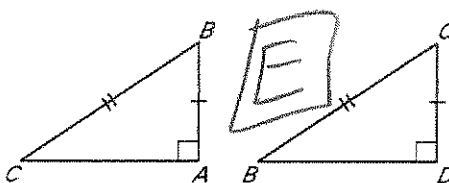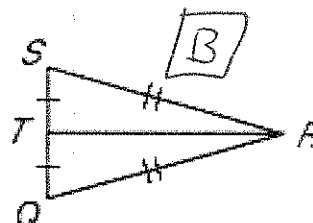
26. Proof   Given: $\overline{ST} \cong \overline{UT}, \overline{SV} \cong \overline{UV}$
                Prove: $\angle TSV \cong \angle TUV$

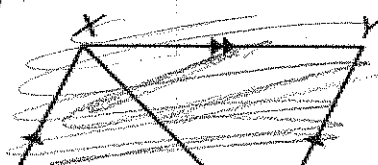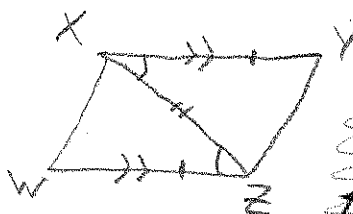| Statements	Reasons
1. $\overline{ST} \cong \overline{UT}, \overline{SV} \cong \overline{UV}$	1. Given
2. $\overline{TV} \cong \overline{TV}$	2. Reflexive
3. $\triangle TSV \cong \triangle TUV$	3. SSS
4. $\angle TSV \cong \angle TUV$	4. CPCTC
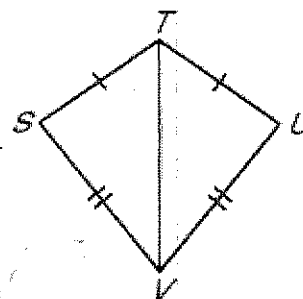
27. Proof   Given: $\overline{WZ} \parallel \overline{XY}, \overline{WZ} \cong \overline{XY}$
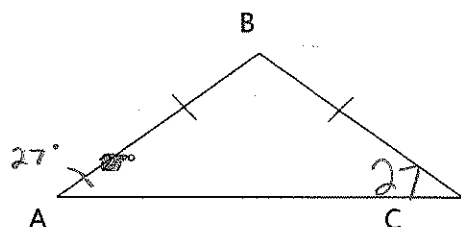   Prove: $\triangle XWZ \cong \triangle ZYX$

Name _____ Date: _____ Hour _____

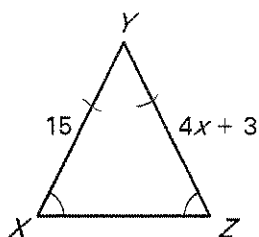| Statements	Reasons
1. $\overline{WZ} \parallel \overline{XY}, \overline{WZ} \cong \overline{XY}$	1. Given
2. $\overline{XZ} \cong \overline{XZ}$	2. Reflexive
3. $\angle WZX \cong \angle YXZ$ ~~3. $\angle WZY \cong \angle YXZ$~~	3. Alt. Interior ∠s
4. $\triangle XWZ \cong \triangle ZYX$	4. SAS

Section 4.7 Use Isosceles and Equilateral Triangles

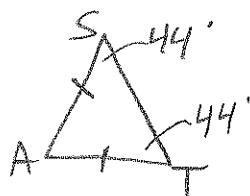28. Find $m\angle B$.

∠B = 180 - 54

$\boxed{126°}$

29. Find the value of x.

4x + 3 = 15
4x = 12
$\boxed{x = 3}$

30. In $\triangle SAT$, if $\overline{SA} \cong \overline{AT}$ and $m\angle S = 44°$, then find the $m\angle T$.

$\boxed{44°}$
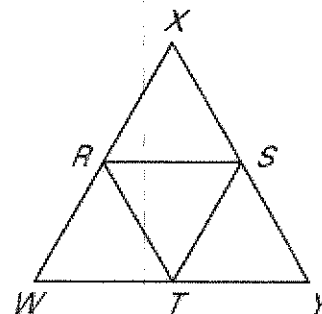
Name _____ Date: _____ Hour _____

Geometry A – Chapter 5 Final Review Practice
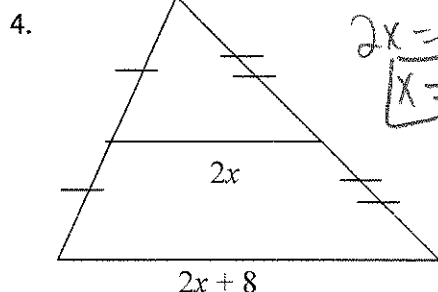
Section 5.1 Midsegment Theorem and Coordinate Proof

Use $\triangle WXY$, where R, S, and T are midpoints of the sides.

1. If RS = 20, then WY = __40__

2. $\overline{RT} \cong$ __$\overline{XS}$__ and __$\overline{SY}$__

3. If the perimeter of $\triangle RST$ is 60, then the perimeter of $\triangle WXY$ is __120__.

Section 5.2 Use Perpendicular Bisectors
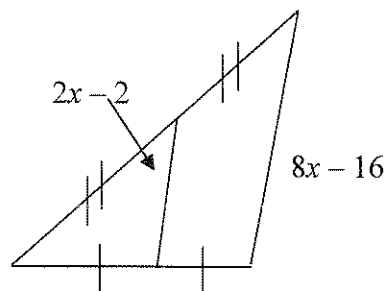
Find the value of x.

$2x = \frac{1}{2}(2x+8)$

$2x = x + 4$

$\boxed{x = 4}$

4.

2x

2x + 8

5.

$2x - 2 = \frac{1}{2}(8x - 16)$

$2x - 2 = 4x - 8$

$6 = 2x$

$\boxed{3 = x}$

2x − 2

8x − 16

6. The point of concurrency for perpendicular bisectors of a right triangle is __B__ the triangle.
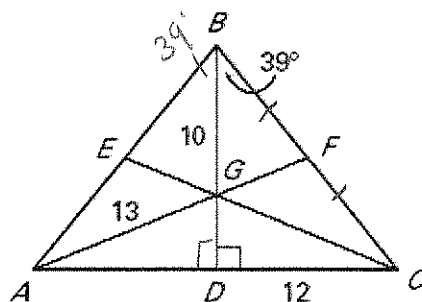
    A. inside   (B. on)   C. outside

Section 5.3 Use Angle Bisectors of Triangles & Section 5.4 Use Medians and Altitudes

Use the figure for the next three questions. In $\triangle ABC$, $\overline{BD}$ is an angle bisector, $m\angle DBC = 39°$, and $BF = FC$.

B

39°

E   10   F

G

13

A   D   12   C

←7. In Find $m\angle BAC$. = $\boxed{51°}$

8. Identify a median of $\triangle ABC$. $\overline{AF}$

9. Identify an altitude of $\triangle ABC$. $\overline{BD}$

Name _____ Date: _____ Hour _____

## Section 5.3 Use Angle Bisectors of Triangles & Section 5.4 Use Medians and Altitudes

10. *Balancing.* You can balance a triangle-shaped object by finding the centroid of the triangle. The length of one median is 24 centimeters. How far from the vertex of the angle that the median was drawn is the centroid?

$$\frac{2}{3} \cdot 24 = \boxed{16 cm}$$

11. In the diagram, L is the centroid of △MNO and LQ = 4. Find OQ.

$$\boxed{OQ = 12}$$
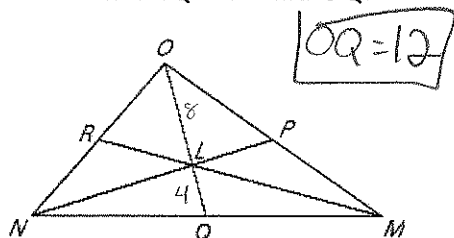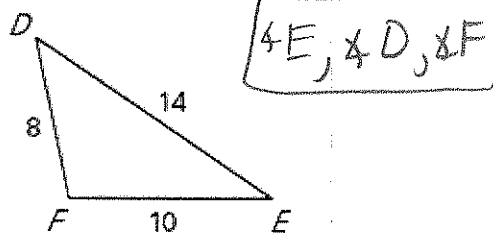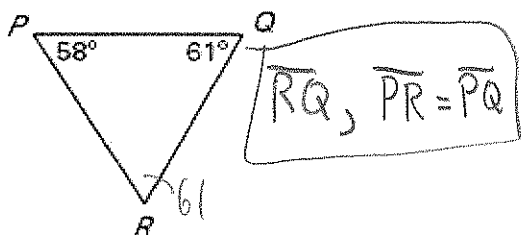
12. $\overline{BD}$ is a median of △ABC. Find x

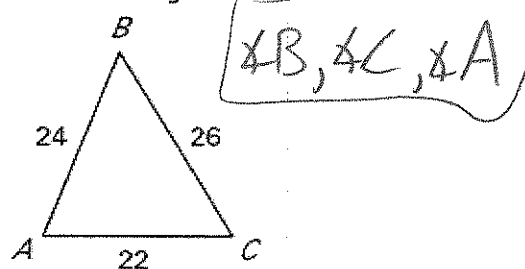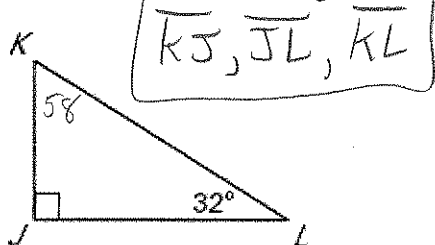$$8x - 12 = 3x + 33$$
$$5x = 45$$
$$\boxed{x = 9}$$

8x − 12   3x + 33
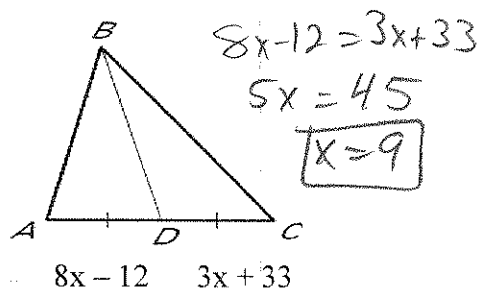
Section 5.5 Use Inequalities in a Triangle

Use the diagram below to list the following:

13. **Sides** in order from least to greatest.

$$\boxed{\overline{RQ}, \ \overline{PR} = \overline{PQ}}$$

61

14. **Angles** in order from least to greatest.

$$\boxed{\angle E, \angle D, \angle F}$$

15. **Sides** in order from least to greatest.

$$\boxed{\overline{KJ}, \overline{JL}, \overline{KL}}$$

16. **Angles** in order from least to greatest.

$$\boxed{\angle B, \angle C, \angle A}$$

Determine whether it is possible to draw a triangle with sides of the given length.

17. 1, 3, 6 $1 + 3 \not> 6$

NO
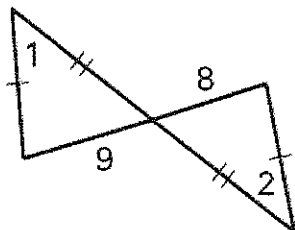
18. 12, 17, 33

$12 + 17 \not> 33$

NO

19. 5, 2, 6

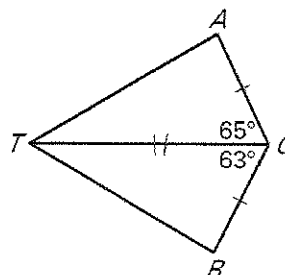$5 + 2 > 6$

Yes

20. 3, 4, 5

$3 + 4 > 5$

Yes

Name _____ Date: _____ Hour _____

Section 5.6 Inequalities in Two Triangles and Indirect Proofs

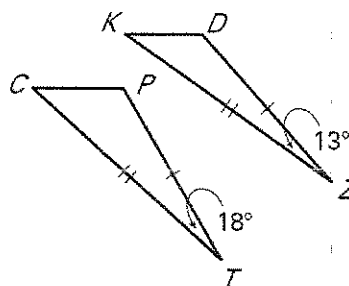Complete the statements with <, >, or =.

21. $m\angle 1 \underline{\quad >\quad} m\angle 2$

22. $AT \underline{\quad \geq \quad} BT$

23. $TP \underline{\quad = \quad} AG$

24. $KD \underline{\quad < \quad} CP$

Name: _____ Date: _____ Hour: _____
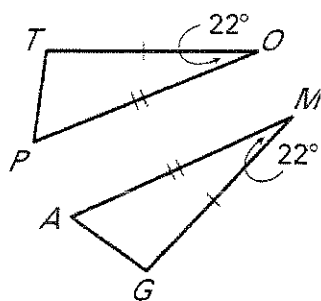
Geometry A – Chapter 6 Final REVIEW Practice: Similarity

6.1 Ratios, Proportions & the Geometric Mean

1. Simplify the ratio.

$\dfrac{10in.}{3ft.}$ $\dfrac{10}{36} = \boxed{\dfrac{5}{18}}$

2. Solve the proportion.

a. $\dfrac{10}{y-5} = \dfrac{6}{y}$ $\quad 4y=30$ $\boxed{y=15 \atop 2}$
$10y = 6y - 30$

b. $\dfrac{x-3}{6} = \dfrac{4x-2}{5}$

(handwritten, top right) $5x-15 = 24x - 12$
$-3 = 19x$
$\boxed{K = \dfrac{-3}{19}}$

3. A survey found that 2 out of 7 students take a gym class per semester. If a high school has 4200 students, what is the estimate of the number of students that are taking a gym class?

$\dfrac{2}{7} = \dfrac{x}{4200} \rightarrow \dfrac{8400}{7} = \dfrac{7x}{7} \rightarrow \boxed{x = 1200}$

4. It took you 20 minutes to burn 123 calories while exercising. At that rate, how many calories can you burn in 35 minutes?

$\dfrac{20}{123} = \dfrac{35}{x} \rightarrow 20x = 4305 \quad \boxed{x = 215.25}$

6.2 Use Proportions to Solve Geometry Problems

5. If the exchange rate of the Euro to the American dollar is 0.81 to 1 and an Italian leather jacket costs 714 Euros, then what would its price be in American dollars?
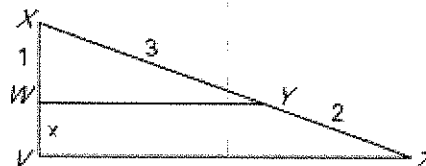
$\dfrac{Euro}{\$} \quad \dfrac{.81}{1} = \dfrac{714}{x} \rightarrow .81x = 714 \quad \boxed{x = \$881.48}$

6. On a map, two neighboring towns are 2.4 inches apart. The map has a scale of 1 in.:15 miles. What is the actual distance between the two towns? $\dfrac{1}{15} = \dfrac{2.4}{x} \rightarrow x = 15 \cdot 2.4 = \boxed{36 \text{ miles}}$

7. Given $\dfrac{XW}{WV} = \dfrac{XY}{YZ}$, find WV. $\dfrac{1}{x} = \dfrac{3}{2}$
$2 = 3x$ $\boxed{WV = \dfrac{2}{3}}$

6.3 Use Similar Polygons

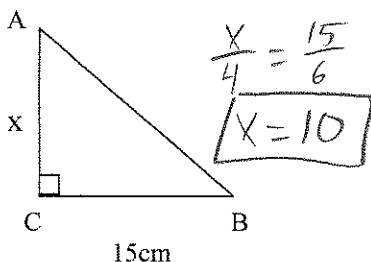8. Give the definition of two SIMILAR polygons.
– all corresponding angle $\cong$
– all corresponding sides have $\cong$ proportions

9. $\triangle ABC$ and $\triangle DEF$ are similar with $\angle A \cong \angle D$, $\angle B \cong \angle E$, and $\angle C \cong \angle F$. If AB, BC, and AC are 2 inches, 5 inches, and 9 inches, respectively, and DE is 6 inches, find DF.
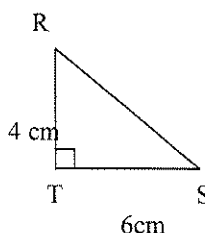
$\dfrac{2}{6} = \dfrac{9}{DF} \rightarrow 2(DF) = 54 \quad \boxed{DF = 27}$

6.4 Prove Triangles Similar by AA ~

10. Find the value of x if $m\angle A = m\angle R$.
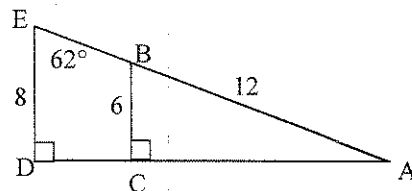
$\dfrac{x}{4} = \dfrac{15}{6}$ $\boxed{x = 10}$

15cm

4 cm
6cm

$x = \underline{\quad 10 \quad}$

scale factor = $\underline{\quad 2.5 \quad}$

11. Find $m\angle ABC$ and AE.

$m\angle ABC = 62°$

$\dfrac{8}{6} = \dfrac{AE}{12} \rightarrow \dfrac{96}{6} = \boxed{AE = 16}$

12. Jeremy wants to measure the height of the streetlight outside his house. He places a mirror on the ground 45 feet from the streetlight, then walks backward until he is able to see the top of the streetlight in the mirror. His eyes are 6.1 feet above the ground, and he is 12 feet from the mirror. What is the height of the streetlight to the nearest tenth of a foot?
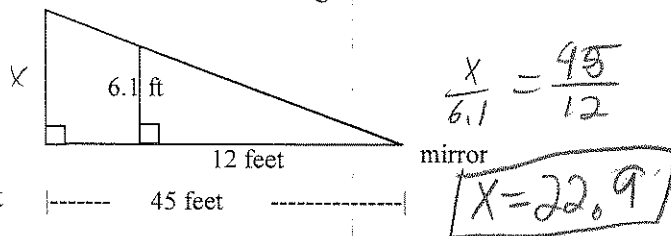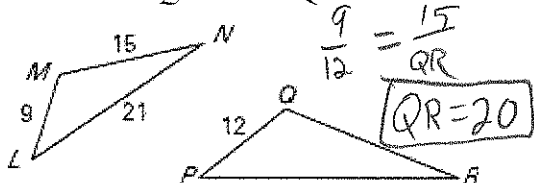
$\dfrac{x}{6.1} = \dfrac{45}{12}$

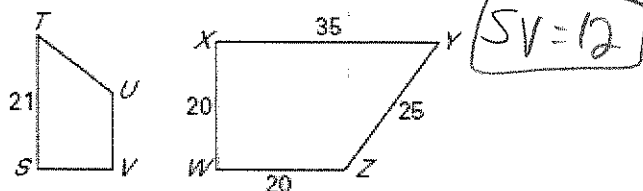$\boxed{x = 22.9}$

6.5 Prove Triangles Similar by SSS~ and SAS~

13. $\triangle LMN \sim \triangle PQR$ Find QR.
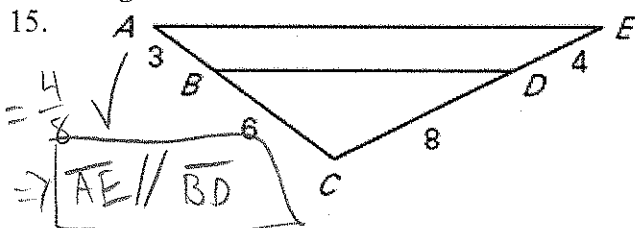
$\dfrac{9}{12} = \dfrac{15}{QR}$

$\boxed{QR = 20}$

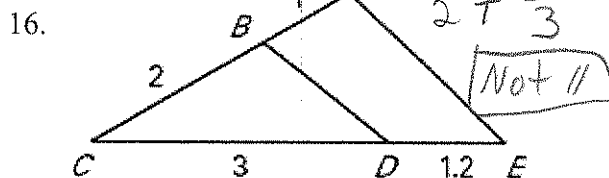14. $STUV \sim XYZW$ Find SV. $\dfrac{SV}{20} = \dfrac{21}{35}$

$\boxed{SV = 12}$

6.6 Use Proportionality Theorems

Use the given information to determine if $\overline{AE} \parallel \overline{BD}$

15.

$\dfrac{3}{6} = \dfrac{4}{8}$ ✓

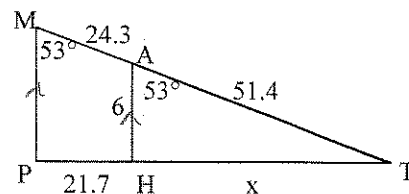$\Rightarrow \boxed{\overline{AE} \parallel \overline{BD}}$

16.

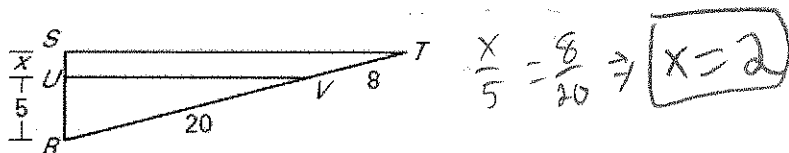$\dfrac{1}{2} \neq \dfrac{1.2}{3}$

$\boxed{\text{Not} \parallel}$

17. Find the value of x if possible.

$\dfrac{x}{21.7} = \dfrac{51.4}{24.3}$

$\boxed{x = 45.9}$

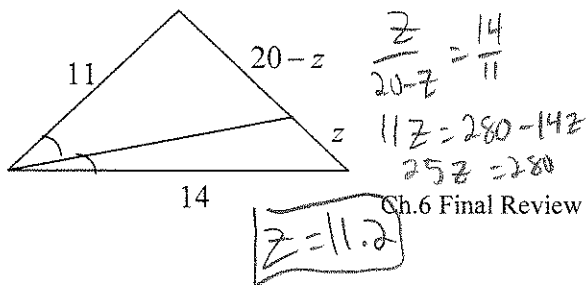18. Given that $\overline{ST} \parallel \overline{UV}$. Find x.

$\dfrac{x}{5} = \dfrac{8}{20} \Rightarrow \boxed{x = 2}$
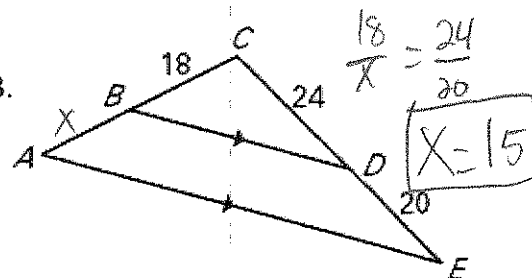
19. What is the value of z in the figure?

$\dfrac{z}{20-z} = \dfrac{14}{11}$

$11z = 280 - 14z$

$25z = 280$

$\boxed{z = 11.2}$

20. Find AB.

$\dfrac{18}{x} = \dfrac{24}{20}$

$\boxed{x = 15}$

Ch.6 Final Review Practice 1/2012

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