

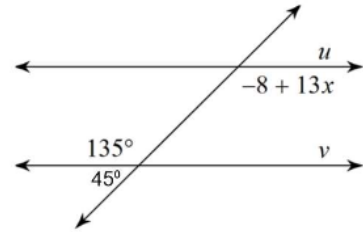
Get out your test review!

Name: _____ Hour: _____

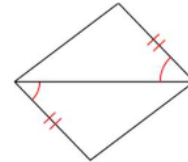
Math 2B Final Review

Circle the correct answer and then write it in the answer blank provided. Show all work on every problem.

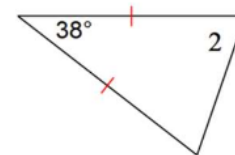
- _____ 1. State the value for x that proves lines u and v are parallel.
 (a) 9.77 (b) 4.08 (c) 11 (d) 130



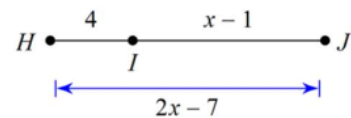
- _____ 2. State if the two triangles can be proven congruent. If so, state how you know.
 (a) HL (b) SAS (c) Not Congruent (d) ASA



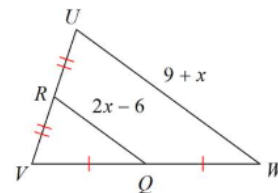
- _____ 3. Find the value of x if $m\angle 2 = 18x - 1$
 (a) 2.17 (b) 7.89 (c) 4 (d) 71



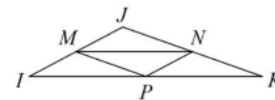
- _____ 4. Find a value for x that would prove the segment addition postulate.
 (a) 10 (b) 5 (c) 10/3 (d) 6



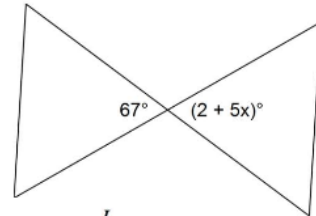
- _____ 5. Solve for x .
 (a) 1 (b) 7 (c) 5 (d) 15



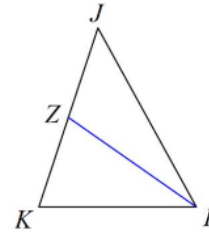
- _____ 6. M , N , and P are the midpoints of the sides. Name a segment parallel to \overline{MP} .
 (a) \overline{NP} (b) \overline{IJ} (c) \overline{IK} (d) \overline{JK}



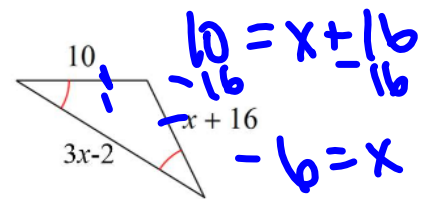
7. Solve for x.
 (a) 60 (b) 13.8 (c) 22.2 (d) 13



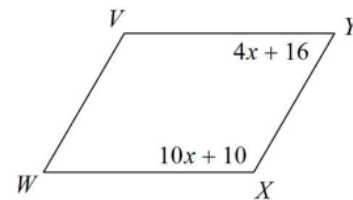
8. Given ZL is a median, find x if $KJ = 3x - 9$, $ZL = x + 4$, and $ZJ = x - 2$.
 (a) $13/2$ (b) $7/2$ (c) 5 (d) 7



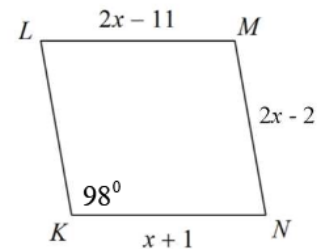
9. Find the value of x.
 (a) -6 (b) 14 (c) 9 (d) 26



10. Given the following parallelogram, solve for x.
 (a) 1 (b) 11 (c) $77/3$ (d) $13/7$

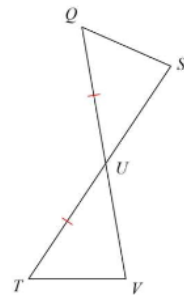


11. Given the following parallelogram, solve for x.
 (a) 12 (b) 3 (c) $9/4$ (d) 98



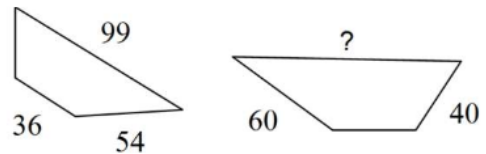
_____12. State what additional information is required in order to know that the triangles are congruent by **ASA**.

- (a) $\angle TUV \cong \angle QUS$ (b) $\angle V \cong \angle S$ (c) $\angle T \cong \angle Q$ (d) $\overline{UV} \cong \overline{US}$



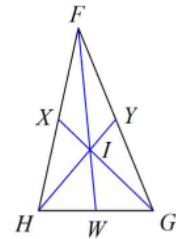
_____13. The polygons are similar, find the missing side length.

- (a) 110 (b) 89.1 (c) 73.33 (d) 65



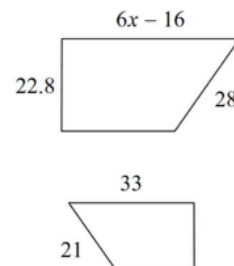
_____14. Given the segments are medians Find x if $FI = -8 + 3x$ and $FW = 4x - 7$

- (a) 3.03 (b) -1 (c) .28 (d) 10



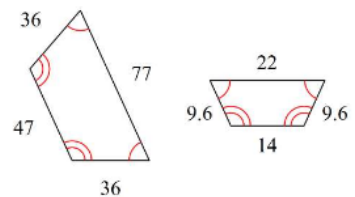
_____15. The polygons are similar, solve for x .

- (a) 11 (b) 10 (c) 7.46 (d) 8.64



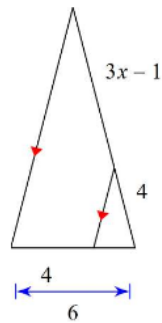
_____16. State if the polygons are similar. If they are similar what is the theorem or postulate that proves they are similar.

- (a) Not Similar (b) ASA (c) AA
 (d) Corresponding angles are \cong and corresponding sides are proportional

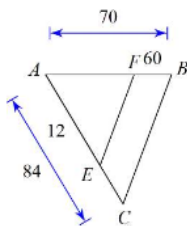


____ 17. The triangles are similar. Solve for x.

- A) 6 B) 7
- C) 10 D) 3



____ 18. State if the triangles in each pair are similar. If so, state how you know they are similar and complete the similarity statement.



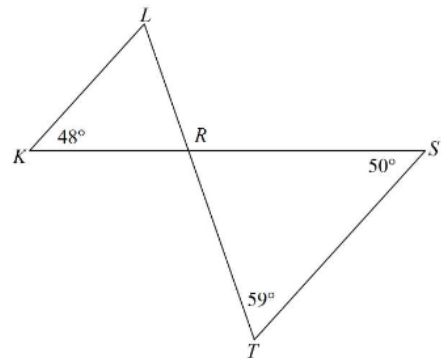
$\triangle ABC \sim$ _____

- A) similar; SSS similarity; $\triangle EAF$
- B) similar; SAS similarity; $\triangle AFE$
- C) not similar
- D) similar; AA similarity; $\triangle EAF$

____ 19. State if the triangles are similar. If so, state how you know they are similar and complete the similarity statement

$\triangle RST \sim$ _____

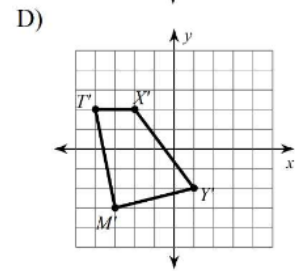
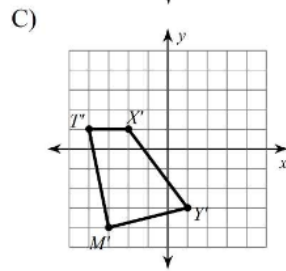
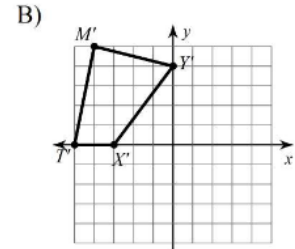
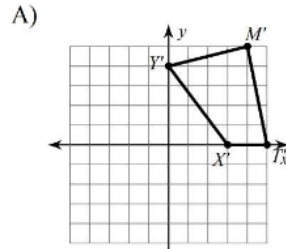
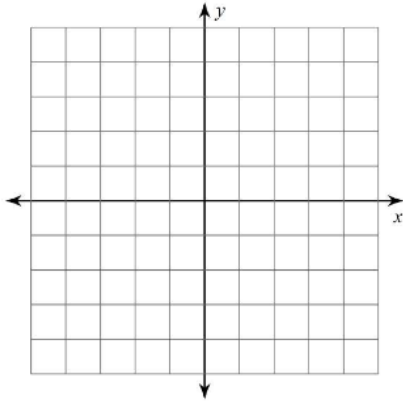
- A) not similar
- B) similar; SSS similarity; $\triangle RLK$
- C) similar; AA similarity; $\triangle RKL$
- D) similar; AA similarity; $\triangle RLK$



____ 20. Graph the image of the figure using the transformation given.

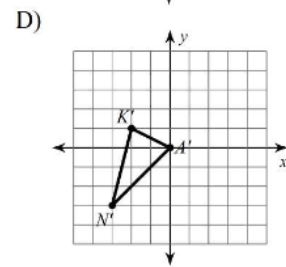
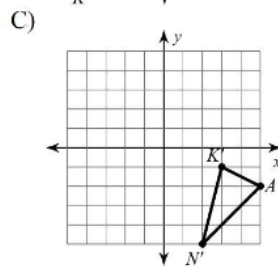
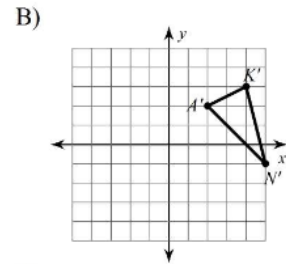
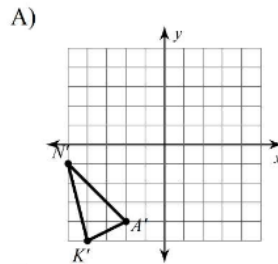
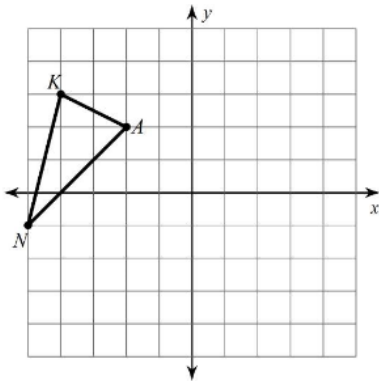
rotation 180° about the origin

$M(-4, -5)$, $T(-5, 0)$, $X(-3, 0)$, $Y(0, -4)$

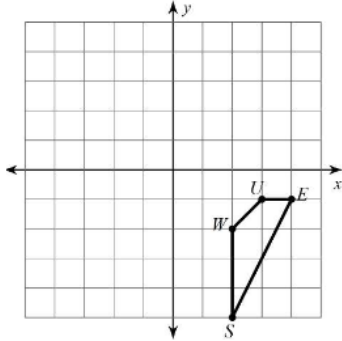


____ 21. Graph the image of the figure using the transformation given.

translation: $(2, -2)$

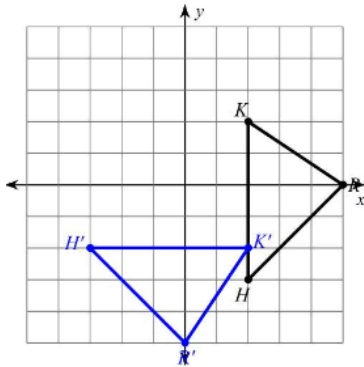


22. Find the coordinates of the vertices of each figure after the given transformation.
reflection across the y-axis



- A) $S'(3, -5), W'(3, -2), U'(4, -1), E'(5, -1)$
- B) $W'(-2, -2), U'(-3, -1), E'(-4, -1), S'(-2, -5)$
- C) $S'(-5, -2), W'(-2, -2), U'(-1, -3), E'(-1, -4)$
- D) $S'(5, 2), W'(2, 2), U'(1, 3), E'(1, 4)$

23. Write a rule to describe each transformation.

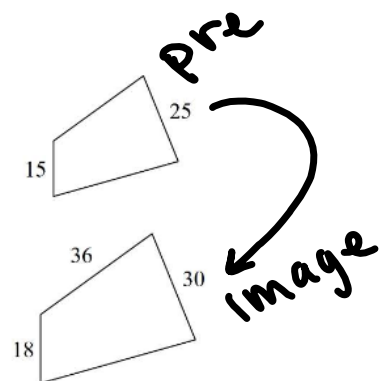


- A) rotation 90° clockwise about the origin
- B) rotation 90° counterclockwise about the origin
- C) reflection across the x-axis
- D) rotation 180° about the origin

24. The two quadrilaterals are similar. Find the scale factor of the smaller figure to the larger figure.

- A) 5 : 6
- B) 5 : 7
- C) 1 : 7
- D) 4 : 5

25 : 30
5 : 6



Given the functions below, perform the indicated operations.

____25. $w(t) = t^3 - 3t^2$; Find $w(-2)$

- A) -4 B) 6
C) -20 D) 4

____26. $g(t) = t^2 + 3t$

$f(t) = 2t - 3$

Find $(g + f)(t)$

- A) $t^2 - 5t - 3$ B) $2t^3 + 3t^2 - 9t$
C) $t^2 + 5t - 3$ D) $t^2 + 6t - 3$

____27. $g(t) = 2t + 3$

$h(t) = -t - 4$

Find $(g - h)(t)$

- A) $3t - 1$ B) $3t + 7$
C) $3t - 7$ D) $-3t - 7$

____28. $f(x) = x + 1$

$g(x) = x^2 - 2x$

Find $(f \cdot g)(x)$

- A) $-x^3 - 2x$ B) $x^3 + 2x^2 - 2x$
C) $x^3 - x^2 - 2x$ D) $x^3 + x^2 - 4x$

____29. $f(t) = t^2 - 2$

$g(t) = t + 4$

Find $\left(\frac{f}{g}\right)(t)$

- A) $\frac{-t^2 + 2}{t + 4}$ B) $\frac{-t + 4}{t^2 - 2}$
C) $\frac{t + 4}{t^2 - 2}$ D) $\frac{t^2 - 2}{t + 4}$

____30. $g(x) = 4x - 1$

$h(x) = x^2 - 4x$

Find $(g \circ h)(x)$

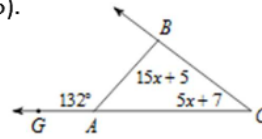
- A) $16x^2 - 24x + 5$ B) $4x^2 - 8x - 1$
C) $4x^2 - 16x - 1$ D) $2x^2 + 14$

$g(h(x))$

$4(x^2 - 4x) - 1$
 $4x^2 - 16x - 1$

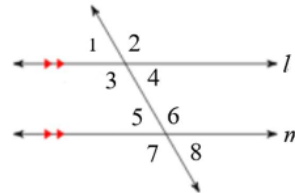
31. Find the measure of angle $\angle ABC$. (Given $\angle ABC = 15x + 5$).

- A) 85°
- B) 95°
- C) 71°
- D) 37°



32. Given $\angle 3 \cong \angle 6$, which theorem is needed to prove that lines l and m are parallel?

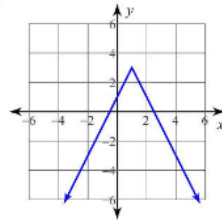
- A) Alternate interior angles theorem
- B) Same side interior angles theorem
- C) Converse of the same side interior angles theorem
- D) Corresponding angles theorem
- E) Converse of the alternate interior angles theorem



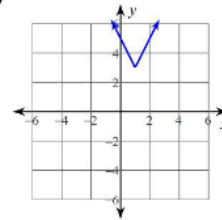
33. Choose the graph that is represented by the following function.

$$y = 2|x + 1| + 3$$

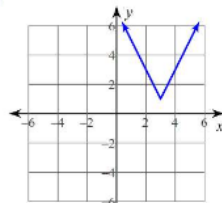
A)



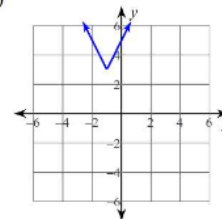
B)



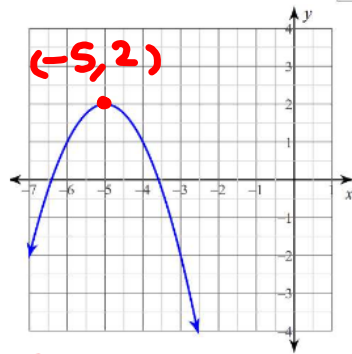
C)



D)



34.



- A) $y = -(x + 5)^2 + 2$
- B) $y = (x + 5)^2 - 2$
- C) $y = -(x - 5)^2 - 2$
- D) $y = -(x + 2)^2 + 2$

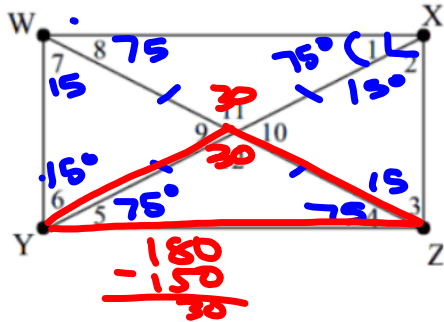
Answer
Key

1. C
2. B
3. C
4. A
5. B
6. D
7. D
8. C
9. A
10. B
11. A
12. C
13. A
14. D
15. B
16. A
17. D
18. B
19. A
20. A
21. D
22. B
23. A
24. A
25. C
26. C
27. B
28. C
29. D
30. C
31. B
32. E
33. D
34. A

Math 2 Final Review

Name: _____

1. WXYZ is a rectangle. Find each measure if $m\angle 1 = 75^\circ$.

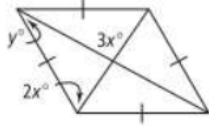


- $m\angle 2 = 15^\circ$
- $m\angle 3 = 15^\circ$
- $m\angle 4 = 75^\circ$
- $m\angle 5 = 75^\circ$
- $m\angle 6 = 15^\circ$

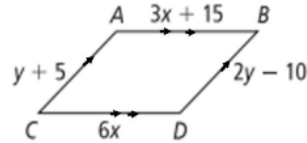
- $m\angle 7 = 15^\circ$
- $m\angle 8 = 75^\circ$
- $m\angle 9 = 150^\circ$
- $m\angle 10 = 150^\circ$
- $m\angle 11 = 30^\circ$

Find the value of the variables.

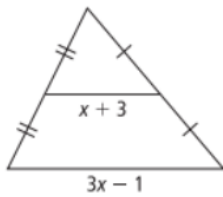
2.



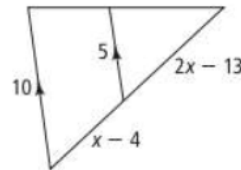
3.



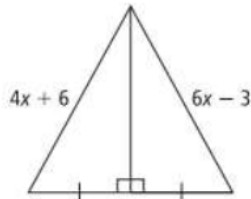
4.



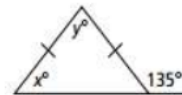
5.



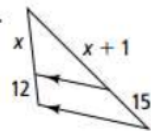
6.



7.

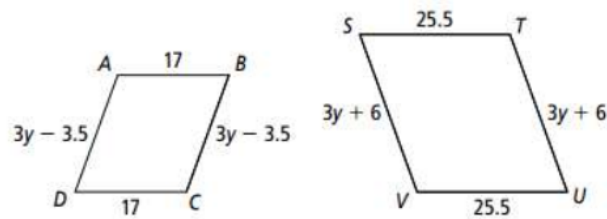


8.

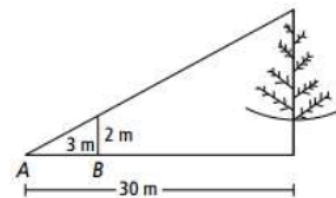


9. Give the value of the scale factor and find the value of the variable.

$ABCD \sim TSVU$

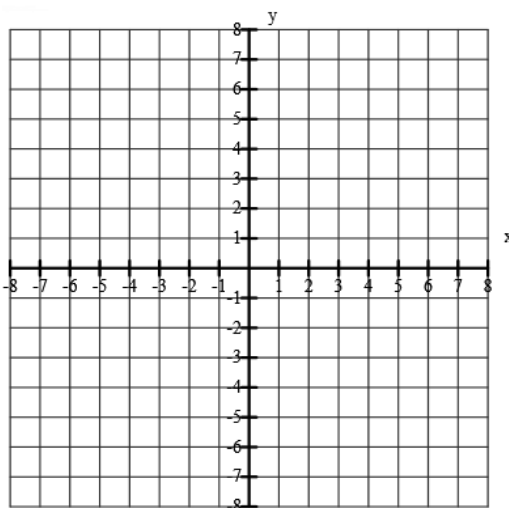


10. A stick is 2 m long is placed vertically at point B. The top of the stick is in line with the top of a tree as seen from point A, which is 3 m from the stick and 30 m from the tree. How tall is the tree?

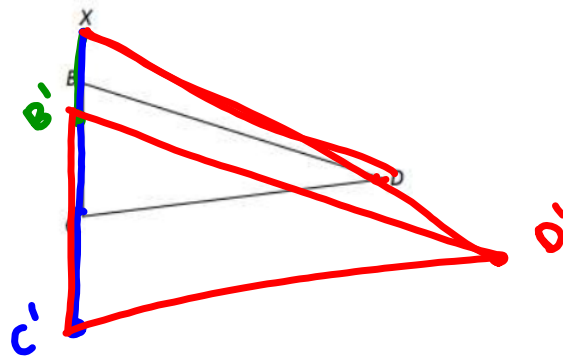


11. A 1.4 meter tall child is standing next to a flagpole. The child's shadow is 1.2 meters long. At the same time, the shadow of the flagpole is 7.5 meters long. How tall is the flagpole (round to the nearest tenth if necessary)?

12. Dilate the triangle $M(2,3)$, $A(1, -4)$ and $T(-1,3)$ by a scale factor of 2.

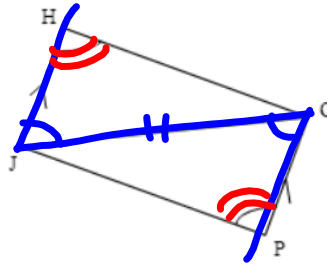


13. Dilate through X by a factor of 1.5



14.

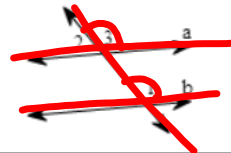
Given: $\angle H \cong \angle P$, $\overline{HJ} \parallel \overline{GP}$
 Prove: $\triangle HJG \cong \triangle PGJ$



Statements	Reasons
a. $\angle H \cong \angle P$	a. Given
b. $\overline{HJ} \parallel \overline{GP}$	b. Given
c. $\angle HJG \cong \angle PGJ$	c. if \parallel line, then Alternate Interior Angle are \cong .
d. $\overline{JG} \cong \overline{JG}$	d. Reflexive Property
e. $\triangle HJG \cong \triangle PGJ$	e. AAS

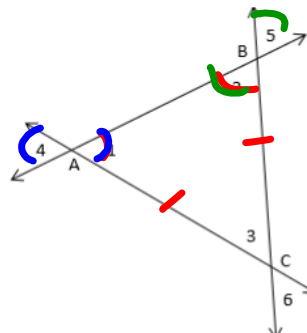
15.

Given: $\angle 2$ and $\angle 1$ are supplementary.
 Prove: $a \parallel b$



Statements	Reasons
a. $\angle 2$ and $\angle 1$ are supplementary	a. Given
b. $\angle 2$ and $\angle 3$ are supp.	b. Linear pairs are supplementary
c. $\angle 1 \cong \angle 3$	c. If two angles are supplementary to the same angle then they are \cong .
d. $a \parallel b$	d. If corresp. \angles are \cong, then lines are \parallel \rightarrow Converse of corresp. \angles thm

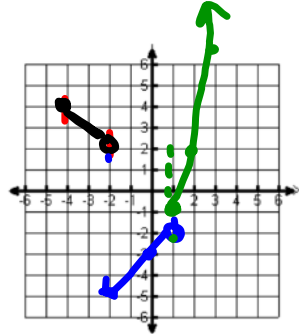
16. Given: $\overline{AC} \cong \overline{BC}$
 Prove: $\angle 4 \cong \angle 5$



Statements	Reasons
a. $\overline{AC} \cong \overline{BC}$	a. Given
b. $\triangle ABC$ is isosceles	b. Definition of Isos \triangle
c. $\angle 1 \cong \angle 2$	c. Base angle of an isosceles triangle are \cong .
d. $\angle 1 \cong \angle 4$	d. Vertical \angle s \cong
e. $\angle 2 \cong \angle 5$	e. Transitive Property
f. $\angle 4 \cong \angle 5$	f. Vertical angles are \cong .
g. $\angle 4 \cong \angle 5$	g. Transitive Prop

17. Graph the piecewise function, then evaluate for the given function values.
Graph the piecewise function, then evaluate for the given function values.

$$f(x) = \begin{cases} -x, & -4 \leq x < -2 \\ x-3, & -2 \leq x < 1 \\ x^2-2, & x \geq 1 \end{cases}$$

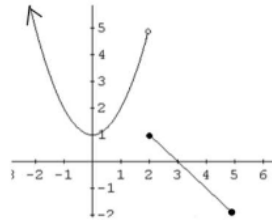


Evaluate:

18. $f(1) = -1$
 19. $f(-4) = 4$
 20. $f(0) = -3$

21. Write the piecewise function for the graph below.

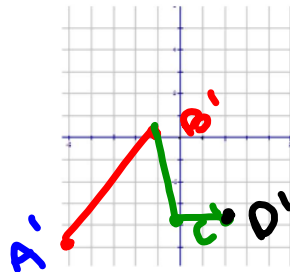
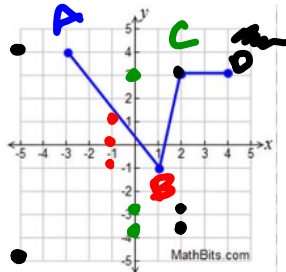
$$f(x) = \begin{cases} \end{cases}$$



Let $f(x)$ be the function represented by the graph below. Perform each indicated transformation and graph the new function on the graph provided.

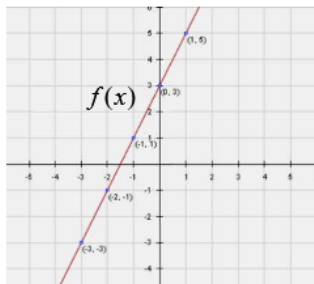
22. $-f(x+2)-1$

left + 2
flip over -x
down 1

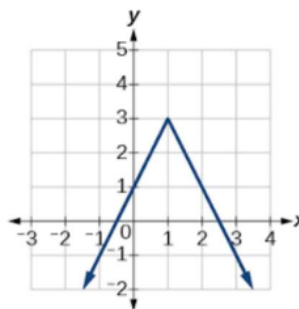


Perform the indicated operation if $g(x) = 5 - 2x$.

23. $f + g$



24. Write the equation of the graph below.



25. Write the equation of a quadratic function that is reflected across the x axis, has a horizontal shift right 1, and a vertical shift down 4.

Given: $f(x) = 2x + 3$ $g(x) = -3x^2$ $k(x) = x^2 - 3x + 1$
 Find the following:

26. $f(-4)$

27. $(f \circ g)(-1)$

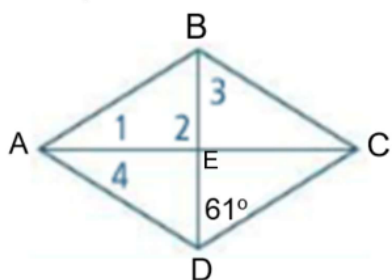
28. $\left(\frac{g}{k}\right)(0)$

29. $(k - f)(x)$

30. $(f \cdot g)(6)$

31. $f(g(x))$

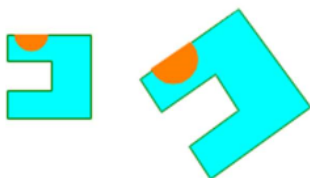
32. The quadrilateral is a Rhombus, find the measurements below given $\overline{EB} = 8$ and $\overline{AB} = 14$.



- a) $\overline{DC} =$
- b) $m\angle 3 =$
- c) $\overline{AE} =$
- d) $m\angle 1 =$

- e) $m\angle 2 =$
- f) $m\angle 4 =$
- g) $\overline{DE} =$
- h) $\overline{AD} =$

33. Are the figures similar? If so, describe the similarity transformation(s) that maps one to the other. If not, explain why they are not similar.



Multiple Choice KEY

Answer

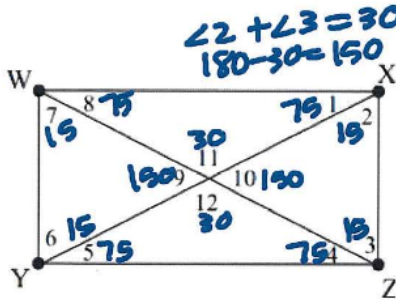
Key

1. C
2. B
3. C
4. A
5. B
6. D
7. D
8. C
9. A
10. B
11. A
12. C
13. A
14. D
15. B
16. A
17. D
18. B
19. A
20. A
21. D
22. B
23. A
24. A
25. C
26. C
27. B
28. C
29. D
30. C
31. B
32. E
33. D
34. A

Math 2 Final Review

Name: _____

1. WXYZ is a rectangle. Find each measure if $m\angle 1 = 75^\circ$.



- $m\angle 2 = 15$
- $m\angle 3 = 15$
- $m\angle 4 = 75$
- $m\angle 5 = 75$
- $m\angle 6 = 15$

- $m\angle 7 = 15$
- $m\angle 8 = 75$
- $m\angle 9 = 150$
- $m\angle 10 = 150$
- $m\angle 11 = 30$

Find the value of the variables.

2. $\frac{3x}{3} = \frac{90}{3}$ $x = 30$ $2(30) = 60$
 $y = 30$

3. $y + 9 = 2y - 10$
 $-y -y$
 $9 = y - 10$
 $+10 +10$
 $y = 19$

4. $2x + 6 = 3x - 1$
 $-2x -2x$
 $6 = x - 1$
 $+1 +1$
 $7 = x$

5. $10(2x - 13) = 9(3x - 17)$
 $20x - 130 = 27x - 153$
 $-15x - 130 = -15x - 86$
 $5x - 130 = -86$
 $+130 +130$
 $5x = 44$
 $x = 8.8$

6. $4x + 6 = 6x - 3$
 $x = 4.5$

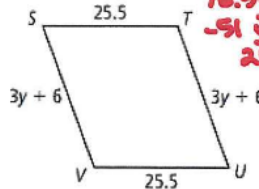
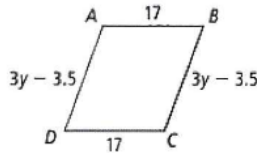
8. $x(x + 16) = (x + 12)(x + 1)$
 $x^2 + 16x = x^2 + x + 12x + 12$
 $x^2 + 16x = x^2 + 13x + 12$
 $-x^2 -x^2$
 $16x = 13x + 12$
 $-13x -13x$
 $3x = 12$
 $x = 4$

9. Give the value of the scale factor and find the value of the variable.

$ABCD \sim TSVU$

$$\frac{17}{25.5} = .66$$

$$\frac{25.5}{17} = 1.5$$



$$\frac{3y-3.5}{3y+6} = \frac{17}{25.5}$$

$$76.5y - 89.25 = 51y + 102$$

$$-51y \quad -91y$$

$$25.5y - 89.25 = 102$$

$$+89.25 \quad +89.25$$

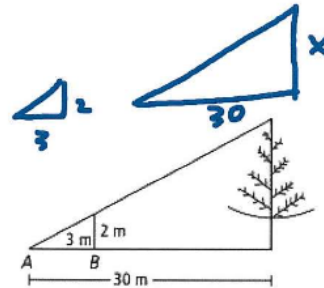
$$\frac{25.5y}{25.5} = \frac{191.25}{25.5}$$

$$y = 7.5$$

10. A stick 2 m long is placed vertically at point B. The top of the stick is in line with the top of a tree as seen from point A, which is 3 m from the stick and 30 m from the tree. How tall is the tree?

$$\frac{\text{sm}}{\text{Big}} \quad \frac{2}{x} = \frac{3}{30}$$

$$x = 20$$



11. A 1.4 meter tall child is standing next to a flagpole. The child's shadow is 1.2 meters long. At the same time, the shadow of the flagpole is 7.5 meters long. How tall is the flagpole (round to the nearest tenth if necessary)?

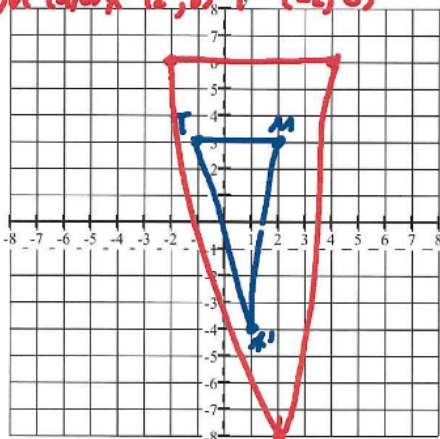


$$\frac{1.2}{1.4} = \frac{7.5}{x}$$

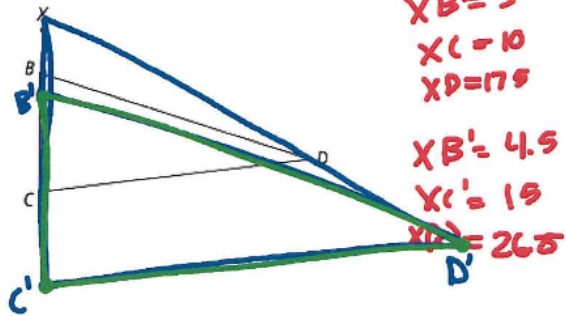
$$x = 8.75$$

12. Dilate the triangle $M(2,3)$, $A(1,-4)$ and $T(-1,3)$ by a scale factor of 2.

Center at zero, zero
 $M'(4,6)$, $A'(2,-8)$, $T'(-2,6)$



13. Dilate through X by a factor of 1.5



$$XB = 3$$

$$XC = 10$$

$$XD = 17.5$$

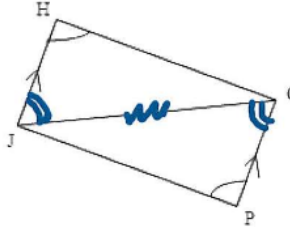
$$XB' = 4.5$$

$$XC' = 15$$

$$XD' = 26.25$$

14.

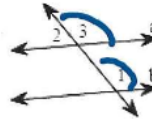
Given: $\angle H \cong \angle P$, $\overline{HJ} \parallel \overline{GP}$
 Prove: $\triangle HJG \cong \triangle PGJ$



Statements	Reasons
a. $\angle H \cong \angle P$	a. Given
b. $\overline{HJ} \parallel \overline{GP}$	b. Given
c. $\angle HJG \cong \angle JGP$	c. if \parallel line, then Alternate Interior Angle are \cong .
d. $\overline{JG} = \overline{JG}$	d. Reflexive Property
e. $\triangle HJG \cong \triangle PGJ$	e. AAS

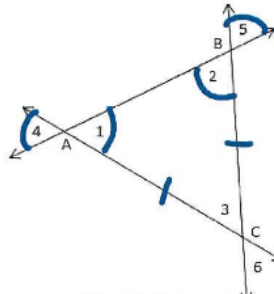
15.

Given: $\angle 2$ and $\angle 1$ are supplementary.
 Prove: $a \parallel b$



Statements	Reasons
a. $\angle 2$ and $\angle 1$ are supplementary	a. Given
b. $\angle 2$ & $\angle 3$ are supp	b. Linear pairs are supplementary
c. $\angle 1 \cong \angle 3$	c. If two angles are supplementary to the same angle then they are \cong .
d. $a \parallel b$	d. if corresp \angle's are \cong lines are \parallel

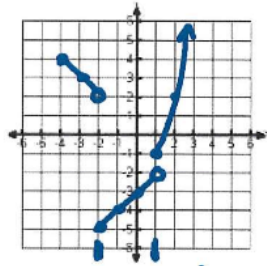
16. Given: $\overline{AC} \cong \overline{BC}$
 Prove: $\angle 4 \cong \angle 5$



Statements	Reasons
a. $\overline{AC} \cong \overline{BC}$	a. Given
b. $\triangle ABC$ is isosceles	b. def of Isosc.
c. $\angle 1 \cong \angle 2$	c. Base angle of an isosceles triangle are \cong .
d. $\angle 1 \cong \angle 4$	d. Vertical \angle's are \cong
e. $\angle 2 \cong \angle 4$	e. Transitive Property
f. $\angle 2 \cong \angle 5$	f. Vertical angles are \cong ,
g. $\angle 4 \cong \angle 5$	g. Transitive P.

17. Graph the piecewise function, then evaluate for the given function values.
Graph the piecewise function, then evaluate for the given function values.

$$f(x) = \begin{cases} -x, & -4 \leq x < -2 \\ x-3, & -2 \leq x < 1 \\ x^2-2, & x \geq 1 \end{cases}$$

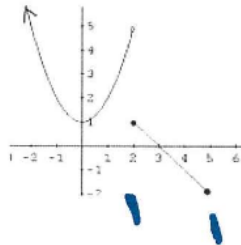


Evaluate:

18. $f(1) = (1)^2 - 2 = -1$
 19. $f(-4) = -(-4) = 4$
 20. $f(0) = 0 - 3 = -3$

21. Write the piecewise function for the graph below.

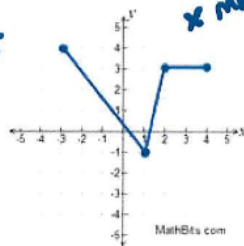
$$f(x) = \begin{cases} x^2 + 1 & x < 2 \\ -x + 3 & 2 \leq x \leq 5 \end{cases}$$



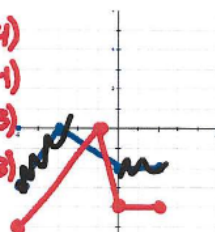
Let $f(x)$ be the function represented by the graph below. Perform each indicated transformation and graph the new function on the graph provided.

22. $-f(x+2) - 1$

2nd flip over x
1st left + 2
3rd down 1



1st mirror
-3, 4 → (5, 4)
+1, -1 → (-1, -1)
2, 3 → (0, 3)
4, 3 → (2, 3)

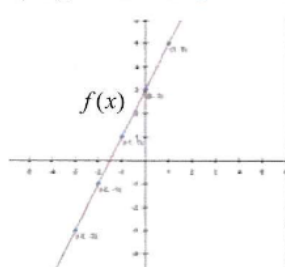


red graph is correct

pendas
2nd x then y's neg } 2nd y's -1
(-5, -4) } (-5, -5)
(-1, 1) } (-1, 0)
(0, -3) } (0, -4)
(2, -3) } (2, -4)

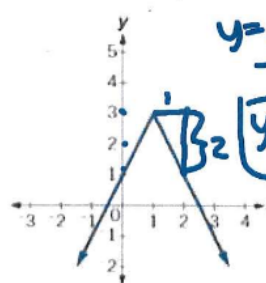
Perform the indicated operation if $g(x) = 5 - 2x$.

23. $f + g$ $f(x) = 2x + 3$



8

24. Write the equation of the graph below.



$y = a|x-h| + k$
-2 1 3

$y = -2|x-1| + 3$

25. Write the equation of a quadratic function that is reflected across the x axis, has a horizontal shift right 1, and a vertical shift down 4.

$y = a(x-h)^2 + k$ $y = -(x-1)^2 - 4$

Given: $f(x) = 2x + 3$ $g(x) = -3x^2$ $k(x) = x^2 - 3x + 1$
 Find the following:

26. $f(-4)$
 $2(-4) + 3$
 $-8 + 3$
 -5

27. $(f \circ g)(-1)$ $g(-1) = -3(-1)^2 = -3$
 $2(-3) + 3$
 $-6 + 3$
 -3

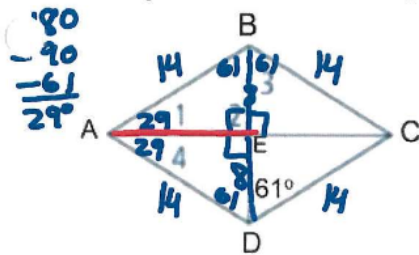
28. $\left(\frac{g}{k}\right)(0)$
 $\frac{-3(0)^2}{(0)^2 - 3(0) + 1}$
 0

29. $(k - f)(x)$
 $x^2 - 3x + 1 - (2x + 3)$
 $x^2 - 3x + 1 - 2x - 3$
 $x^2 - 5x - 2$

30. $(f \cdot g)(6)$
 $2(6) + 3 = 15$ $-3(6)^2 = -108$
 $15 \cdot -108$
 -1620

31. $f(g(x))$
 $2(-3x^2) + 3$
 $-6x^2 + 3$

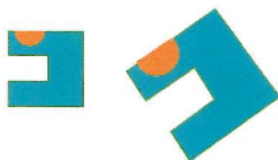
32. The quadrilateral is a Rhombus, find the measurements below given $\overline{EB} = 8$ and $\overline{AB} = 14$.



- a) $\overline{DC} = 14$
- b) $m\angle 3 = 61^\circ$
- c) $\overline{AE} = \sqrt{132}$
- d) $m\angle 1 = 29^\circ$
- e) $m\angle 2 = 90^\circ$
- f) $m\angle 4 = 29^\circ$
- g) $\overline{DE} = 8$
- h) $\overline{AD} = 14$

$14^2 = 8^2 + b^2$
 $196 = 64 + b^2$
 $\sqrt{132} = \sqrt{b^2}$

33. Are the figures similar? If so, describe the similarity transformation(s) that maps one to the other. If not, explain why they are not similar.



Rotation of about 45°
 dilate about 1.5
 translate to the right