

2016-2017

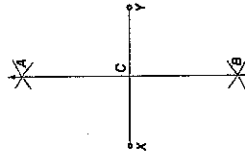
Geometry Midterm Review KEYS

Review 1

| | | | | | | | | | |
|-------|--------------------|---------------------|--------|---|--------|-------------------------|-----------|--------|--------------|
| 41. 3 | 42. BC 17, DF = 65 | 43. they sum to 180 | 44. 45 | 45. a pair of sides are congruent and parallel. Diagonals must be congruent | 46. 20 | 47. given Reflexive SAS | 48. below | 49. 21 | 50. 33.2, 27 |
|-------|--------------------|---------------------|--------|---|--------|-------------------------|-----------|--------|--------------|

31. Answer: Mark a point anywhere on the circle.
- Set the compass on this point and set the width of the compass to the center of the circle. The compass is now set to the radius of the circle
- Make an arc across the circle.
- Move the compass on to the next vertex and draw another arc.
- Continue in this way until you have six arcs.
- Draw a line segment between non-consecutive pairs of vertices, for a total of three segments.

These segments form an equilateral triangle inscribed in the given circle.



Answer: Jersey could use a ruler to measure the length of \overline{XY} , making its midpoint. Placing a protractor at the midpoint, he could mark off a 90° angle. Then he could use the ruler to draw a perpendicular line from the mark through the midpoint of \overline{XY} . Jersey could look at X' and mark a point approximately at the midpoint. Then he could sketch a line through the midpoint so the line is approximately perpendicular to \overline{XY} . He could include a right-angle mark to indicate that the bisector should be perpendicular to \overline{XY} and congruency marks to indicate that the two segments on either side of the bisector are

Answer:

- $\overline{DN} \cong \overline{YN}, \overline{WN} \cong \overline{FN}$, Given
- $\angle N \cong \angle N$, reflexive
- $\triangle MWN \cong \triangle FDN$

48.

32.

| | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1. A | 2. D | 3. B | 4. C | 5. B | 6. D | 7. A | 8. A | 9. B | 10. A |
| 11. D | 12. A | 13. D | 14. B | 15. C | 16. A | 17. D | 18. B | 19. D | 20. B |
| 21. B | 22. C | 23. C | 24. A | 25. A | 26. B | 27. C | 28. B | 29. B | 30. C |
| 31. B | 32. B | 33. A | 34. A | 35. D | 36. A | 37. C | 38. C | 39. D | 40. D |
| 41. B | 42. C | 43. B | 44. B | 45. D | 46. B | | | | |

Review 2

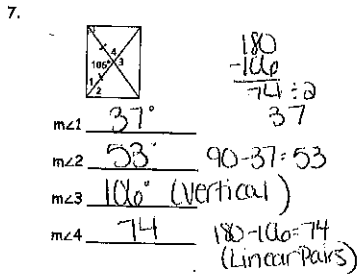
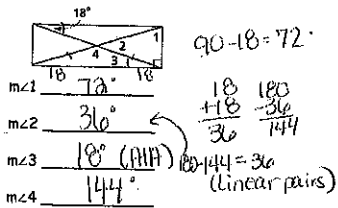
| | | | | | | | | | |
|-------------------------------------|-------------------------------|---|-------------------------------|--|---|---|--------------------------------------|---|-----------------------------|
| 1. (-6, -8) | 2. left 5, up 8 | 3. (-6, 12) | 4. x axis on y = 0 | 5. 2 down and 4 right | 6. (9, 10) | 7. (-1, -6) (-1, -8) (-5, -6) (-5, -8) | 8. 1 AND 3: 2 AND 4 | 9. KL and K'L' they both pass through center of dilation. | 10. 8 |
| 11. A | 12. a. 180 b. 180 c. AIA, AIA | 13. 60, 240 | 14. A(0, 1), B(3, 2), C(4, 3) | 15. K'(-2, -2), L'(2, 2), M'(6, -2), N'(2, -6) | 16. reflect over y axis, translate 4 down | 17. (-2, -1) | 18. 5 by 8 cm | 19. CB and CB' | 20. point line plane |
| 21. definition supplementary angles | 22. x = 72, 116 | 23. Alternate interior angles are congruent | 24. hexagon | 25. | 26. | 27. $y = \frac{1}{3}x - 3$ | 28. $y = \frac{1}{6}x + \frac{5}{4}$ | 29. rotate 90 degrees, translate 1 up | 30. x = 55, y = 44 |
| 31. below | 32. below | 33. (-2, 3) | 34. 13, 12 | 35. C | 36. B | 37. B | 38. a. BE b. FC c. AC d. DG | 39. same as 12 | 40. A = 35, B = 102, C = 43 |

For constructions #24-26 go to mathopenref.com and watch the constructions.

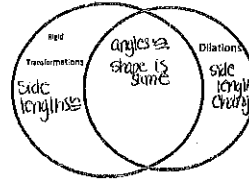
Are each of the following:

- A. a formal definition (something you would read out of a textbook),
- B. a description (in your own words),
- C. neither Explain:

1. B A hexagon is a shape with 6 sides
2. A A pentagon is a plane figure with five straight sides and five angles.
3. C A plane is a flat surface that has no thickness and extends forever in all directions
4. C A point is a location. It has no size.
5. C A line is a series of points that extends forever in both directions.
- 6.

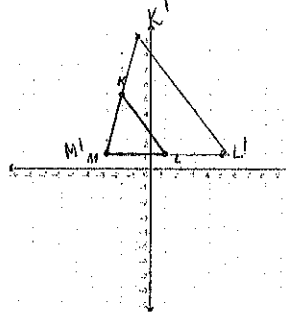


8. Compare the properties of rigid transformations and dilations

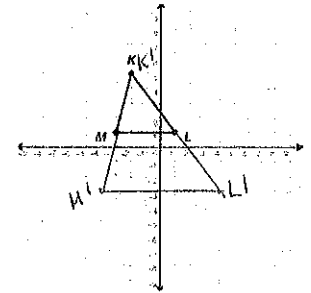


- Angles are congruent
- Side lengths are congruent
- Shape is the same
- Side lengths change

9. Dilate $\triangle KLM$ with scale factor 2 center M



10. Dilate $\triangle KLM$ with scale factor 2 center K



A. are any side lengths congruent? If so, which ones? If not, why?

No - in a dilation all side lengths change!

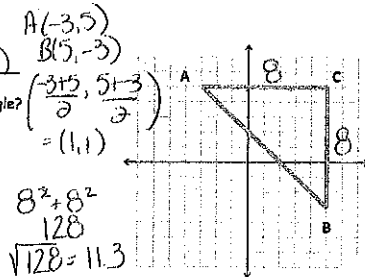
B. In problem 9 with center M, which sides are parallel? $KL \parallel K'L'$

C. In problem 10 with center K, which sides are parallel? $ML \parallel M'L'$

11. What is the midpoint of \overline{AB} ? (1,1)

What is the perimeter of the triangle? $8 + 8 + 11.3 = 27.3$ units

What is the area of the triangle? $\frac{1}{2} \cdot 8 \cdot 8 = 32$ units²

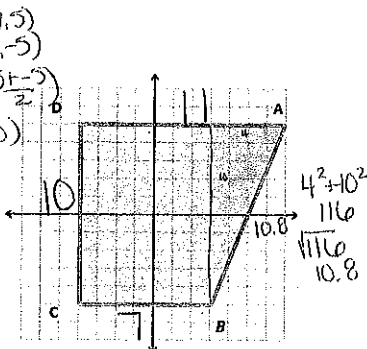


12. What is the midpoint of \overline{AB} ? (5,0)

What is the perimeter of the figure? $7 + 10 + 11 + 10.8 = 38.8$ units

What is the area of the figure? $70 + 20 = 90$ units²

rectangle area: $10 \cdot 7 = 70$
 triangle area: $\frac{1}{2} \cdot 10 \cdot 4 = 20$

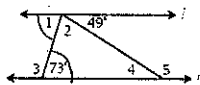


13. A. $m\angle 1$ 73°

B. $\angle 1$ and 73° are what kind of angles? AIA

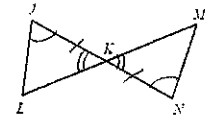
C. $m\angle 3$ 107

D. $\angle 1$ and 73° are what kind of angles? Linear Pairs



14. Given: $\angle J \cong \angle N, \overline{JK} \cong \overline{NR}$

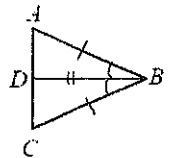
Prove: $\triangle JKL \cong \triangle NKM$



| Statements | Reasons |
|---|---------------------|
| 1. $\angle J \cong \angle N, \overline{JK} \cong \overline{NR}$ | Given |
| 2. $\angle JKL \cong \angle NKM$ | Vertical \angle s |
| 3. $\triangle JKL \cong \triangle NKM$ | ASA |

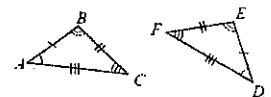
15. Given: $\angle ABD \cong \angle CBD, \overline{AB} \cong \overline{CB}$

Prove: $\triangle ABD \cong \triangle CBD$

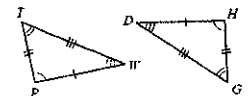


| Statements | Reasons |
|---|-----------|
| 1. $\angle ABD \cong \angle CBD, \overline{AB} \cong \overline{CB}$ | Given |
| 2. $\overline{DB} \cong \overline{DB}$ | Reflexive |
| 3. $\triangle ABD \cong \triangle CBD$ | SAS |

16. $\triangle ABC \cong \triangle DEF$
 $\triangle BAC \cong \triangle FED$

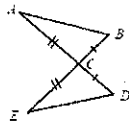


17. $\triangle WPT \cong \triangle DHG$
 $\triangle PTW \cong \triangle HGD$



18. $\triangle ABC \cong \triangle EDC$

$\triangle CAB \cong \triangle CED$



19. $\angle ACB \cong \angle ECD$ is an example of

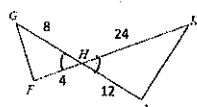
- A. corresponding angles
- B. reflexive property
- C. vertical angles
- D. triangle angle sum theorem

20. Matching: Give the similarity ratio when possible. Use each answer once.

- A. AA~
- B. SSS~
- C. SAS~
- D. not similar

| | |
|--|--|
| <p>C</p> <p>$\frac{12}{30} = \frac{2}{5}$ $\frac{18}{30} = \frac{3}{5}$ $\angle Y \cong \angle Y$ $\frac{15}{25} = \frac{3}{5}$</p> | <p>A</p> <p>$\angle Y \cong \angle Y$ $\angle S \cong \angle Z$</p> |
| <p>D</p> <p>$\frac{9}{21} = \frac{3}{7}$ $\frac{12}{21} = \frac{4}{7}$ $\frac{10}{16} = \frac{5}{8}$</p> | <p>B</p> <p>$\frac{10}{15} = \frac{2}{3}$ $\frac{12}{9} = \frac{4}{3}$ $\frac{6}{9} = \frac{2}{3}$</p> |

21. *order of letters is important! 22.



$\frac{4}{12} = \frac{1}{3}$
 $\frac{8}{24} = \frac{1}{3}$

Similarity ratio: $\frac{1}{3}$
 $\triangle GHF \sim \triangle HKJ$ by SAS~

$\frac{GF}{KJ} = \frac{GH}{KH} = \frac{HF}{HJ}$

23. $y = \frac{3}{4}x - 3$

Write the equation for the line that is parallel to the given line through

$(-8, 4)$ // $m = \frac{3}{4}$

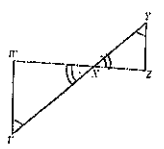
$y = mx + b$
 $4 = \frac{3}{4}(-8) + b$
 $4 = -6 + b$
 $10 = b$
 $y = \frac{3}{4}x + 10$

25. $y = \frac{3}{2}x - 3$

Write the equation for the line that is perpendicular to the given line through

$(-6, 10)$ $\perp m = -\frac{4}{3}$

$y = mx + b$
 $10 = -\frac{4}{3}(-6) + b$
 $10 = 8 + b$
 $2 = b$
 $y = -\frac{4}{3}x + 2$



$\triangle WXV \sim \triangle ZXY$ by AA~

$\frac{WX}{ZX} = \frac{WV}{YZ} = \frac{VX}{YX}$

24. $y = \frac{1}{4}x - 7$

Write the equation for the line that is parallel to the given line through

$(12, 8)$ // $m = \frac{1}{4}$

$y = mx + b$
 $8 = \frac{1}{4}(12) + b$
 $8 = 3 + b$
 $5 = b$
 $y = \frac{1}{4}x + 5$

26. $y = \frac{3}{2}x - 7$

Write the equation for the line that is perpendicular to the given line through

$(5, -8)$ $\perp m = -4$

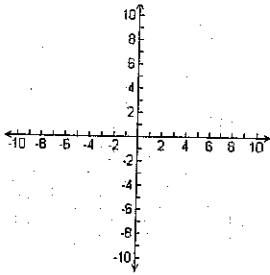
$y = mx + b$
 $-8 = -4(5) + b$
 $-8 = -20 + b$
 $12 = b$
 $y = -4x + 12$

27. compare the slopes of the lines created by:

Line 1: (5, 4) and (8, 1)

Line 2: (-3, 6) and (-2, 5)

You may graph or use the slope formula.



$m_1 = \frac{1-4}{8-5} = \frac{-3}{3} = -1$
 $m_2 = \frac{5-6}{-2-(-3)} = \frac{-1}{1} = -1$

parallel

28. Which pair of slopes would be perpendicular to each other?

- A. -2, 2
- B. $\frac{5}{3}, \frac{3}{5}$
- C. -12, $\frac{1}{12}$
- D. 3, 3

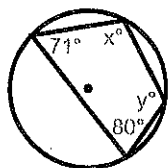
opposite reciprocals!

29. $x = 100^\circ$ $y = 109^\circ$

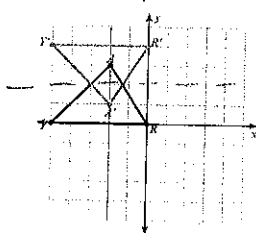
$\frac{180-100}{100} = \frac{180-109}{109}$

Name the reflection lines:

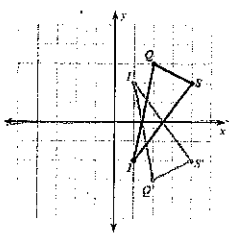
30. $x = 1$



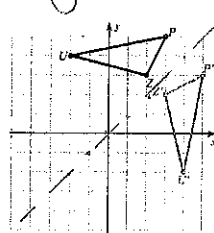
31. $y = 2$



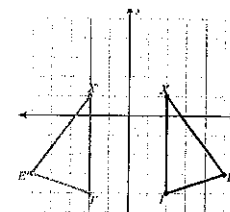
32. x-axis



33. $y = x$

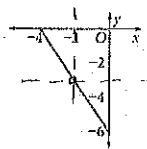


34. y-axis



35. (-2, -3)

Find the circumcenter:

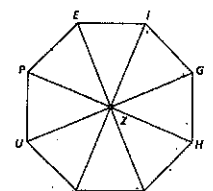


36.

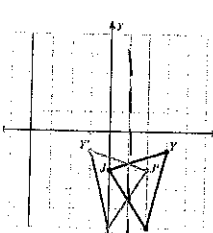
$\frac{360}{8} = 45^\circ$ each turn is 45°

Regular octagon EIGHTSUP is divided into eight congruent triangles. Find the image of each point or segment for the given rotation.

1. 45° rotation of G about Z 1 turn \overline{I}
2. 225° rotation of U about Z 5 turns \overline{I}
3. 315° rotation of E about Z 7 turns \overline{I}
4. 270° rotation of \overline{E} about Z 6 turns \overline{HG}
5. 135° rotation of S about Z 3 turns \overline{G}
6. 360° rotation of \overline{ST} about Z stays!



Go counterclockwise!



| | |
|---------------|-------|
| Constructions | 22. C |
| 1. | 23. C |
| 2. | 24. D |
| 3. | 25. C |
| 4. | 26. B |
| 5. | 27. A |
| 6. | 28. B |
| 7. D | 29. B |
| 8. B | |
| 9. B | |
| 10. | |
| 11. C | |
| 12. D | |
| 13. A | |
| 14. D | |
| 15. A | |
| 16. C | |
| 17. D | |
| 18. C | |
| 19. A | |
| 20. B | |
| 21. C | |

| | | |
|--------------|-----------------------|-----------------|
| "Shmoop" Key | 22. E (2, -2) (4, -7) | 43. D |
| 1. A | (-1, -5) | 44. C |
| 2. D | 23. D | 45. C |
| 3. A | 24. D | 46. B |
| 4. B | 25. C | 47. B |
| 5. B | 26. C | 48. C |
| 6. B | 27. C | 49. C |
| 7. A | 28. B | 50. C |
| 8. C | 29. B | 51. A |
| 9. D | 30. B | 52. B |
| 10. D | 31. C | 53. C |
| 11. A | 32. D | 54. A |
| 12. C | 33. D | 55. D; part 2 A |
| 13. B | 34. A | 56. B |
| 14. A | 35. C | 57. D |
| 15. B | 36. B | 58. C |
| 16. B | 37. D | 59. B |
| 17. A | 38. A | 60. C |
| 18. D | 39. A | |
| 19. C | 40. A | |
| 20. A | 41. B | |
| 21. C | 42. B | |

OLD REV 1

| | |
|---------------------|---------------|
| Geometry Semester 1 | Review 1 cont |
| Review 1 KEY | |
| 1. D | 21. A |
| 2. B; 5 | 22. B |
| 3. A | 23. D |
| 4. B | 24. C |
| 5. A | 25. C |
| 6. B | 26. D |
| 7. D | 27. A |
| 8. A | 28. C |
| 9. A | 29. B |
| 10. A | 30. A |
| 11. D | 31. C |
| 12. A | 32. B |
| 13. C | 33. D |
| 14. B | 34. C |
| 15. B | 35. C |
| 16. A | 36. False |
| 17. C | 37. D |
| 18. D | 38. B |
| 19. A | 39. C |
| 20. B | 40. A |
| | 41. B |

| |
|----------------|
| Review 1 cont. |
| 42. C |
| 43. D |
| 44. B |
| 45. B |
| 46. B |
| 47. B |