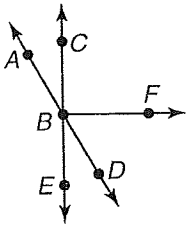


Show all work on a separate sheet of paper.

## Geometry Midterm Exam Review

- \_\_\_\_\_ 1. Find  $y$  if  $B$  is between  $A$  and  $C$ ,  $AB$  is  $2y$ ,  $BC$  is  $6y$ , and  $AC$  is  $48$ .  
 A. 24  
 B. 8  
 C. 6  
 D. 4
- \_\_\_\_\_ 2. Find the distance between  $P(2, 8)$  and  $Q(5, 3)$ .  
 A. 9  
 B.  $\sqrt{18}$   
 C.  $\sqrt{34}$   
 D.  $\sqrt{170}$
- \_\_\_\_\_ 3. Find the coordinates of the midpoint of  $\overline{LB}$  if  $L(8, 5)$  and  $B(-6, 2)$ .  
 A.  $(1, 3\frac{1}{2})$   
 B.  $(2, 1\frac{1}{2})$   
 C.  $(7, 3\frac{1}{2})$   
 D.  $(7, 1\frac{1}{2})$

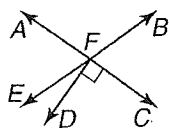
Use the figure below.



- \_\_\_\_\_ 4. Find  $m\angle FBD$  if  $\angle FBD$  and  $\angle DBE$  are complementary and  $m\angle FBD$  is twice  $m\angle DBE$ .  
 A. 30  
 B. 45  
 C. 60  
 D. 90
- \_\_\_\_\_ 5. Which pair of angles are supplementary?  
 A.  $\angle ABE, \angle CBD$   
 B.  $\angle ABC, \angle ABD$   
 C.  $\angle ABC, \angle CBD$   
 D.  $\angle ABC, \angle EBD$
- \_\_\_\_\_ 6. Which angle is a vertical angle to  $\angle ABE$ ?  
 A.  $\angle DBE$   
 B.  $\angle CBD$   
 C.  $\angle ABC$   
 D.  $\angle EBA$
- \_\_\_\_\_ 7. If  $m\angle CBF = 6x + 18$ , find  $x$  so that  $CB \perp BF$ .  
 A. 90  
 B. 45  
 C. 18  
 D. 12
- \_\_\_\_\_ 8. Find  $m\angle ABC$  if  $m\angle ABC = 4x + 9$  and  $m\angle EBD = 7x - 9$ .  
 A. 6  
 B. 33  
 C. 45  
 D. 73

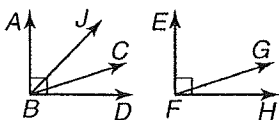
9. Identify the conclusion of the statement *Jack will go to school if today is Monday*.
- A. Jack will go to school  
 B. Jack will not go to school  
 C. today is Monday  
 D. today is not Monday
10. Identify the inverse of the following statement.  
 If  $x = 2$ , then  $x + 3 = 5$ .
- A. If  $x + 3 = 5$ , then  $x = 2$ .  
 B. If  $x + 3 \neq 5$ , then  $x \neq 2$ .  
 C. If  $x \neq 2$ , then  $x + 3 \neq 5$ .  
 D.  $x = 2$  and  $x + 3 = 5$ .
11. Identify the contrapositive of the following statement.  
 If  $x = 2$ , then  $x + 3 = 5$ .
- A. If  $x + 3 = 5$ , then  $x = 2$ .  
 B. If  $x + 3 \neq 5$ , then  $x \neq 2$ .  
 C. If  $x \neq 2$ , then  $x + 3 \neq 5$ .  
 D.  $x = 2$  and  $x + 3 = 5$ .
12. If  $XY = 6$ ,  $YZ = 4$ , and  $XZ = 2$ , which point is between the other two?
- A.  $X$   
 B.  $Y$   
 C.  $Z$   
 D. cannot tell

Use the figure below.



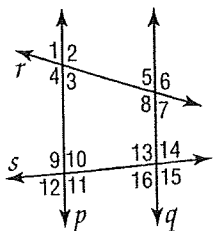
13. If  $m\angle BFC = 70$ , find  $m\angle EFD$ .
- A. 10  
 B. 20  
 C. 35  
 D. 70
14. If  $m\angle AFB = 5x - 10$  and  $m\angle BFC = 3x + 20$ , find  $x$ .
- A. 10  
 B. 15  
 C. 21.25  
 D.  $23\bar{3}$

Use the figures below.



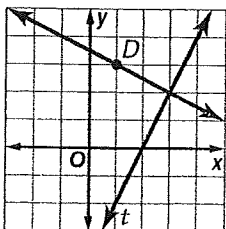
15. If  $\angle ABC \cong \angle EFG$ , and  $m\angle ABC = 72$ , find  $m\angle GFH$ .
- A. 18  
 B. 72  
 C. 90  
 D. 108
16. If  $m\angle ABJ = 28$ ,  $\angle ABC \cong \angle DBJ$ , find  $m\angle JBC$ .
- A. 90  
 B. 56  
 C. 45  
 D. 34

Refer to the figure below. Identify the special name for each angle.



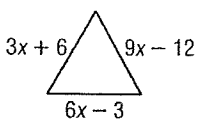
- \_\_\_ 17.  $\angle 3$  and  $\angle 10$
- |                       |                         |
|-----------------------|-------------------------|
| A. alternate exterior | C. consecutive interior |
| B. alternate interior | D. corresponding        |
- \_\_\_ 18.  $\angle 9$  and  $\angle 13$
- |                       |                         |
|-----------------------|-------------------------|
| A. alternate exterior | C. consecutive interior |
| B. alternate interior | D. corresponding        |
- \_\_\_ 19. Given  $p \parallel q$  and  $m\angle 3 = 75$ , find  $m\angle 5$ .
- |       |        |
|-------|--------|
| A. 15 | C. 105 |
| B. 75 | D. 120 |
- \_\_\_ 20. Given  $p \parallel q$  and  $m\angle 10 = 3x - 7$  and  $m\angle 13 = 4x - 9$ , find  $x$ .
- |       |       |
|-------|-------|
| A. -2 | C. 16 |
| B. 2  | D. 28 |
- \_\_\_ 21. Given  $\angle 1 \cong \angle 5$ , which postulate or theorem justifies that  $p \parallel q$ ?
- Corresponding Angles Postulate
  - Consecutive Interior Angles Theorem
  - Alternate Exterior Angles Theorem
  - Alternate Interior Angles Theorem
- \_\_\_ 22. If  $\angle 12 \cong \angle 14$ , which postulate or theorem justifies that  $p \parallel q$ ?
- Corresponding Angles Postulate
  - Consecutive Interior Angles Theorem
  - Alternate Exterior Angles Theorem
  - Alternate Interior Angles Theorem
- \_\_\_ 23. If  $p \parallel q$  by the Consecutive Interior Angles Theorem, which angle pair must be supplementary?
- |                               |                                |
|-------------------------------|--------------------------------|
| A. $\angle 3$ and $\angle 10$ | C. $\angle 8$ and $\angle 13$  |
| B. $\angle 3$ and $\angle 8$  | D. $\angle 15$ and $\angle 16$ |
- \_\_\_ 24. If  $m\angle 4 = 7x - 20$  and  $m\angle 8 = 5x + 18$ , find  $x$  so that  $p \parallel q$ .
- |        |       |
|--------|-------|
| A. -19 | C. 1  |
| B. -1  | D. 19 |

25. What is the distance from  $D$  to  $t$  shown in the figure?



- A. 2
- B. 3
- C. 5
- D.  $\sqrt{5}$

26. What is the length of the sides of this equilateral triangle?

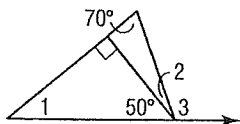


- A. 42
- B. 30
- C. 15
- D. 12

27. How would  $\triangle ABC$  with vertices  $A(4, 1)$ ,  $B(2, -1)$ , and  $C(-2, -1)$  be classified based on its sides?

- A. equilateral
- B. isosceles
- C. scalene
- D. right

Use the figure.



28. What is  $m\angle 1$ ?

- A. 40
- B. 50
- C. 70
- D. 90

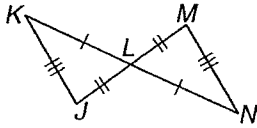
29. What is  $m\angle 3$ ?

- A. 40
- B. 70
- C. 90
- D. 110

30. If  $\triangle DJL \cong \triangle EGS$ , which segment in  $\triangle EGS$  corresponds to  $\overline{DL}$ ?

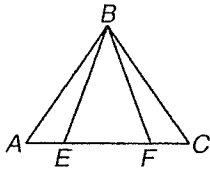
- A.  $\overline{EG}$
- B.  $\overline{ES}$
- C.  $\overline{GS}$
- D.  $\overline{GE}$

31. Which triangles are congruent in the figure?



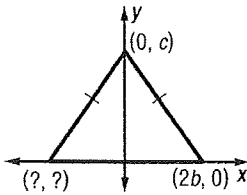
- A.  $\triangle KLM \cong \triangle JLN$                       C.  $\triangle KLM \cong \triangle JLN$   
 B.  $\triangle KLM \cong \triangle JLN$                       D.  $\triangle KLM \cong \triangle JLN$

32. If  $\triangle ABC$  is isosceles and  $\overline{AE} \cong \overline{FC}$ , which theorem or postulate can be used to prove  $\triangle AEB \cong \triangle CFB$ ?



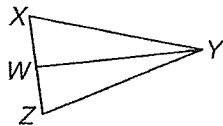
- A. SSS    C. ASA  
 B. SAS     D. AAS

33. What are the missing coordinates of the triangle?



- A.  $(-2b, 0)$                                       C.  $(-c, 0)$   
 B.  $(0, 2b)$                                      D.  $(0, -c)$

Refer to the figure to determine which is a true statement for the given information.

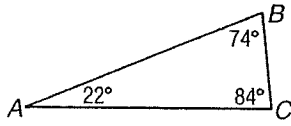


34.  $\overline{YW}$  is an angle bisector.  
 A.  $\angle YWZ$  is a right angle.                      C.  $XW = WZ$   
 B.  $\angle XYW \cong \angle ZYW$                               D.  $XY = ZY$

35.  $\overline{YW}$  is an altitude.  
 A.  $\angle YWZ$  is a right angle.                      C.  $XW = WZ$   
 B.  $\angle XYW \cong \angle ZYW$                               D.  $XY = ZY$

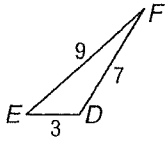
36.  $\overline{YW}$  is a median.  
 A.  $\angle YWZ$  is a right angle.                      C.  $XW = WZ$   
 B.  $\angle XYW \cong \angle ZYW$                               D.  $XY = ZY$

37. Name the longest side of  $\triangle ABC$ .



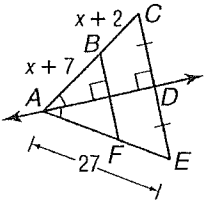
- A.  $\overline{AB}$
- B.  $\overline{BC}$
- C.  $\overline{AC}$
- D. cannot tell

38. Name the angle with greatest measure in  $\triangle DEF$ .



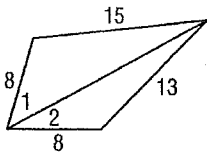
- A.  $\angle D$
- B.  $\angle E$
- C.  $\angle F$
- D. cannot tell

39. Find  $x$ .



- A. 9
- B. 11
- C. 27
- D. 32

40. What is the relationship between the measures of  $\angle 1$  and  $\angle 2$ ?

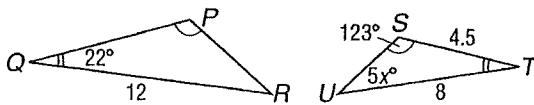


- A.  $m\angle 1 = m\angle 2$
- B.  $m\angle 1 < m\angle 2$
- C.  $m\angle 1 > m\angle 2$
- D. cannot tell

41. Of the 240 students eating lunch, 96 purchased their lunch and the rest brought a bag lunch. What is the ratio of students purchasing lunch to students bringing a bag lunch?

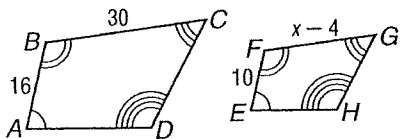
- A. 2:3
- B. 2:5
- C. 3:2
- D. 5:2

42. If  $\triangle PQR \sim \triangle STU$ , find  $x$ .



- A. 4.4  
 B. 7  
 C. 24.6  
 D. 35

43. If  $ABCD \sim EFGH$ , find  $x$ .

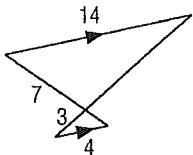


- A. 18.75  
 B. 20  
 C. 22.75  
 D. 28

44.  $\triangle ABC \sim \triangle LMN$ ,  $AB = 18$ ,  $BC = 12$ ,  $LN = 9$ , and  $LM = 6$ . What is the scale factor of  $\triangle ABC$  to  $\triangle LMN$ ?

- A.  $\frac{9}{2}$   
 B.  $\frac{3}{2}$   
 C.  $\frac{3}{1}$   
 D.  $\frac{2}{1}$

45. Name the theorem or postulate that can be used to prove that these triangles are similar.

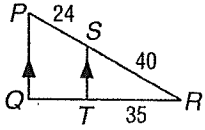


- A. AA Similarity  
 B. SSS Similarity  
 C. SAS Similarity  
 D. SSA Similarity

46. A 24-foot flagpole cast a 20-foot shadow. The building next to it cast an 85-foot shadow. Find the height of the building.

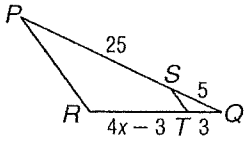
- A.  $70\frac{5}{6}$  ft  
 B. 89 ft  
 C.  $96\frac{1}{6}$  ft  
 D. 102 ft

47. Find  $QT$ .



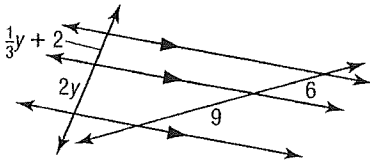
- A. 15
- B. 17
- C. 19
- D. 21

48. Find  $x$  so that  $\overline{ST} \parallel \overline{PR}$ .



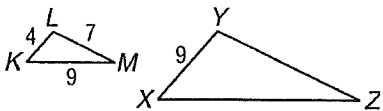
- A. 4
- B.  $4\frac{1}{2}$
- C. 6
- D.  $6\frac{1}{2}$

49. Find  $y$ .



- A.  $\frac{4}{3}$
- B. 2
- C.  $\frac{7}{3}$
- D. 3

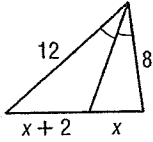
50. If  $\triangle KLM \sim \triangle XYZ$ , find the perimeter of  $\triangle XYZ$ .



- A. 40
- B. 42
- C. 45
- D. 48

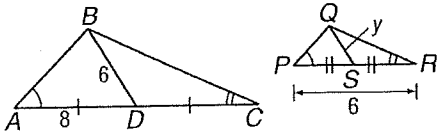


51. Find  $x$ .



- A. 4  
B. 5  
C. 6  
D. 8

52. Find  $y$ .



- A.  $2\frac{1}{4}$   
B.  $2\frac{3}{4}$   
C.  $3\frac{1}{2}$   
D.  $4\frac{1}{2}$

53. Find the sum of the measures of the interior angles of a convex 30-gon.

- A. 5400  
B. 5040  
C. 360  
D. 168

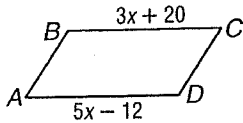
54. Find the sum of the measures of the exterior angles of a convex 21-gon.

- A. 21  
B. 180  
C. 360  
D. 3420

55. If the measure of each interior angle of a regular polygon is 108, find the measure of each exterior angle.

- A. 18  
B. 72  
C. 90  
D. 108

56. For parallelogram  $ABCD$ , find  $x$ .

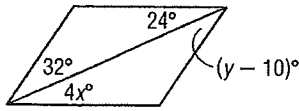


- A. 4  
B. 10.25  
C. 16  
D. 21.5

57. Which of the following is a property of a parallelogram?

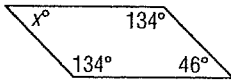
- A. The diagonals are congruent.  
B. The diagonals bisect the angles.  
C. The diagonals are perpendicular.  
D. The diagonals bisect each other.

58. Find  $x$  and  $y$  so that  $ABCD$  will be a parallelogram.



- A.  $x = 6, y = 42$                       C.  $x = 20, y = 42$   
 B.  $x = 6, y = 22$                       D.  $x = 20, y = 22$

59. Find  $x$  so that this quadrilateral is a parallelogram.



- A. 44    C. 90  
 B. 46    D. 134

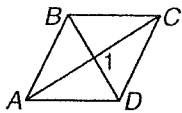
60.  $ABCD$  is a rectangle with diagonals  $\overline{AC}$  and  $\overline{BD}$ . If  $AC = 2x + 10$  and  $BD = 56$ , find  $x$ .

- A. 23    C. 78  
 B. 33    D. 122

61.  $ABCD$  is a rectangle with  $B(-5, 0)$ ,  $C(7, 0)$  and  $D(7, 3)$ . Find the coordinates of  $A$ .

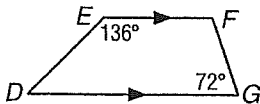
- A.  $(-5, 7)$                                   C.  $(-5, 3)$   
 B.  $(3, 5)$                                     D.  $(7, -3)$

62. For rhombus  $ABCD$ , find  $m\angle 1$ .



- A. 45    C. 90  
 B. 60    D. 120

63. In trapezoid  $DEFG$ , find  $m\angle D$ .

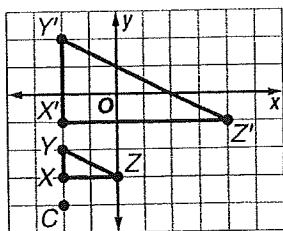


- A. 44    C. 108  
 B. 72    D. 136

64. The hood of Olivia's car is the shape of a trapezoid. The base bordering the windshield measures 30 inches and the base at the front of the car measures 24 inches. What is the width of the median of the hood?

- A. 25 in.                                      C. 28 in.  
 B. 27 in.                                      D. 29 in.

65. The length of one base of a trapezoid is 44, the median is 36, and the other base is  $2x + 10$ . Find  $x$ .
- A. 9  
B. 17  
C. 21  
D. 40
66.  $ABCD$  is a rectangle with  $A(0, 0)$ ,  $B(b, 0)$ , and  $D(0, a)$ . Find the coordinates of  $C$ .
- A.  $C(a, b)$   
B.  $C(b, a)$   
C.  $C(2b, a)$   
D.  $C(a + b, a)$
67. Given  $B(-4, -6)$ , under which reflection is  $B'(4, 6)$ ?
- A. reflected in the  $x$ -axis  
B. reflected in the  $y$ -axis  
C. reflected in the origin  
D. reflected in the line  $y = x$
68. What is the image of  $Y(-4, 7)$  under the translation  $(x, y) \rightarrow (x + 3, y - 5)$ ?
- A.  $Y'(-1, 2)$   
B.  $Y'(-1, 12)$   
C.  $Y'(-7, 2)$   
D.  $Y'(-7, 12)$
69. Sue scans a 4-inch picture into her computer. She stretches the picture's length to 10 inches. Find the scale factor she used.
- A. 6  
B.  $\frac{5}{2}$   
C. 2  
D.  $\frac{2}{5}$
70. Find the reflection of the point  $A(6, -1)$  across the line  $y = x$ .
- A.  $(6, -1)$   
B.  $(-6, 1)$   
C.  $(6, 1)$   
D.  $(-1, 6)$
71. Name the image of  $C(6, -4)$  under a rotation  $90^\circ$  counterclockwise about the origin.
- A.  $C'(4, 6)$   
B.  $C'(-4, -6)$   
C.  $C'(6, 4)$   
D.  $C'(-6, -4)$
72. Find the scale factor if  $\triangle X'Y'Z'$  is the image of  $\triangle XYZ$  under a dilation with center  $C$ .

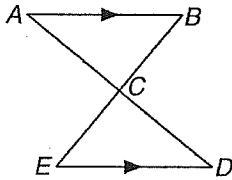


- A. 6  
B. 3  
C. 2  
D.  $\frac{1}{3}$

Essay

Complete each two column proof below.

73. Write a two-column proof.



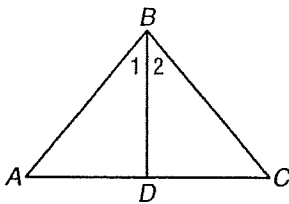
**Given:**  $\overline{AB} \parallel \overline{DE}$ ,  $\overline{AD}$  bisects  $\overline{BE}$ .

**Prove:**  $\triangle ABC \cong \triangle DEC$

74. **Given:**  $\triangle ABC$  is an isosceles triangle with base  $\overline{AC}$ .

$D$  is the midpoint of  $\overline{AC}$ .

**Prove:**  $\overline{BD}$  bisects  $\angle ABC$ .



# Accelerated

## Geometry Midterm Exam Review

### Answer Section

#### MULTIPLE CHOICE

- |            |            |
|------------|------------|
| 1. ANS: C  | 40. ANS: C |
| 2. ANS: C  | 41. ANS: A |
| 3. ANS: A  | 42. ANS: B |
| 4. ANS: C  | 43. ANS: C |
| 5. ANS: C  | 44. ANS: C |
| 6. ANS: B  | 45. ANS: A |
| 7. ANS: D  | 46. ANS: D |
| 8. ANS: B  | 47. ANS: D |
| 9. ANS: A  | 48. ANS: B |
| 10. ANS: C | 49. ANS: B |
| 11. ANS: B | 50. ANS: C |
| 12. ANS: C | 51. ANS: A |
| 13. ANS: B | 52. ANS: A |
| 14. ANS: C | 53. ANS: B |
| 15. ANS: A | 54. ANS: C |
| 16. ANS: D | 55. ANS: B |
| 17. ANS: C | 56. ANS: C |
| 18. ANS: D | 57. ANS: D |
| 19. ANS: B | 58. ANS: A |
| 20. ANS: D | 59. ANS: B |
| 21. ANS: A | 60. ANS: A |
| 22. ANS: C | 61. ANS: C |
| 23. ANS: B | 62. ANS: C |
| 24. ANS: D | 63. ANS: A |
| 25. ANS: D | 64. ANS: B |
| 26. ANS: C | 65. ANS: A |
| 27. ANS: C | 66. ANS: B |
| 28. ANS: A | 67. ANS: C |
| 29. ANS: D | 68. ANS: A |
| 30. ANS: B | 69. ANS: B |
| 31. ANS: D | 70. ANS: D |
| 32. ANS: B | 71. ANS: A |
| 33. ANS: A | 72. ANS: B |
| 34. ANS: B |            |
| 35. ANS: A |            |
| 36. ANS: C |            |
| 37. ANS: A |            |
| 38. ANS: A |            |
| 39. ANS: A |            |

73. ANS:

Statements	Reasons
1. $\overline{AB} \parallel \overline{DE}$	1. Given
2. $\angle ABC \cong \angle DEC$	2. $\parallel$ lines form congruent Alt. ints $\angle$ s
3. $\overline{AD}$ bisects $\overline{BE}$	3. Given
4. $\overline{BC} \cong \overline{EC}$	4. Definition of segment bisector
5. $\angle ACB \cong \angle DCE$	5. Vert. $\angle$ s are $\cong$
6. $\triangle ABC \cong \triangle DEC$	6. ASA

74. Statements

- |   |  |
|---|--|
| 1. $\triangle ABC$ is an isosceles triangle with base $\overline{AC}$ . | Reasons  |
| 2. $D$ is the midpoint of $\overline{AC}$ .                             | 1. Given   |
| 3. $\overline{AD} \cong \overline{CD}$                                  | 2. Given   |
| 4. $\overline{AB} \cong \overline{BC}$                                  | 3. Definition of midpoint                          |
| 5. $\angle A \cong \angle C$  | 4. Def of Isosc Triangle                           |
| 6. $\triangle ABD \cong \triangle CBD$                                  | 5. Base $\angle$ s of an isos triangle are $\cong$ |
| 7. $\angle 1 \cong \angle 2$  | 6. SAS   |
| 8. $\overline{BD}$ bisects $\angle ABC$                                 | 7. CPCTC   |
|   | 8. Def of $\angle$ Bisector                        |

