

Key

# Honors Math 2 Semester 1 PRACTICE TEST

$p$	$q$	$\sim q$	$p \vee \sim q$
T	T	F	T
T	F	T	T
F	T	F	F
F	F	T	T

OR

1. Which would be the values in the  $p \vee \sim q$  column?

- A FTFF      C TTF T  
 B FTTF      D TFFT

2. Identify the contrapositive of the following statement.

If  $x = 2$ , then  $x + 3 = 5$ .

F If  $x + 3 = 5$ , then  $x = 2$ .

G If  $x + 3 \neq 5$ , then  $x \neq 2$ .

H If  $x \neq 2$ , then  $x + 3 \neq 5$ .

J  $x = 2$  and  $x + 3 = 5$ .

3. Choose the property that justifies the following statement.

If  $x = 2$  and  $x + y = 3$ , then  $2 + y = 3$ .

A Reflexive

B Symmetric

C Transitive

D Substitution

4. Choose the property that justifies the statement  $m\angle A = m\angle A$ .

F Reflexive

G Symmetric

H Transitive

J Substitution

5. Choose the property that justifies the statement If  $\overline{GH} \cong \overline{FD}$ , then  $\overline{FD} \cong \overline{GH}$ .

A Reflexive

B Symmetric

C Transitive

D Definition of congruent segments

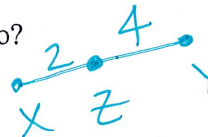
6. On a line, if  $XY = 6$ ,  $YZ = 4$ , and  $XZ = 2$ , which point is between the other two?

F X

G Y

H Z

J cannot tell



For Exercises 7 and 8, use the figure at the right.

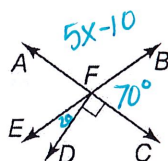
7. If  $m\angle BFC = 70$ , find  $m\angle EFD$ .

A 10

C 35

B 20

D 70



8. If  $m\angle AFB = 5x - 10$  and  $m\angle BFC = 3x + 20$ , find  $x$ .

F 10

G 15

H 21.25

J 23.3

$$5x - 10 + 3x + 20 = 180$$

$$8x + 10 = 180$$

$$8x = 170$$

9.  $\angle 3$  and  $\angle 10$

A alternate exterior

B alternate interior

C consecutive interior

D corresponding

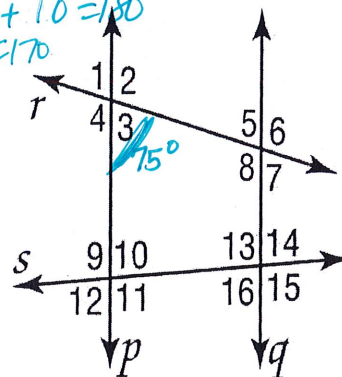
10.  $\angle 9$  and  $\angle 13$

F alternate exterior

G alternate interior

H consecutive interior

J corresponding



11. Given  $p \parallel q$  and  $m\angle 3 = 75$ , find  $m\angle 5$ .

75°

B

# Honors Math 2 Semester 1 PRACTICE TEST

**B**

A 15

**B 75**

C 105

D 120

**J**

12. Given  $p \parallel q$ ,  $m\angle 10 = 3x - 7$ , and  $m\angle 13 = 4x - 9$ , find the value of  $x$ .

F -2

G 2

H 16

**J 28**

$$3x - 7 + 4x - 9 = 180$$

$$7x - 16 = 180$$

$$7x = 196$$

$$x = 28$$

**D**

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

A 2

B 3

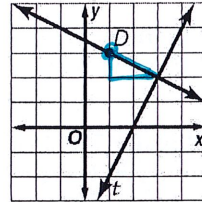
C 5

**D  $\sqrt{5}$**

$$1^2 + 2^2 = c^2$$

$$1 + 4 = c^2$$

$$\sqrt{5} = c$$



**H**

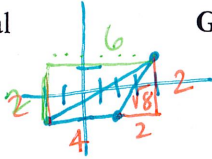
14. How would  $\triangle ABC$  with vertices  $A(4, 1)$ ,  $B(2, -1)$ , and  $C(-2, -1)$  be classified based on the length of its sides?

F equilateral

G isosceles

**H scalene**

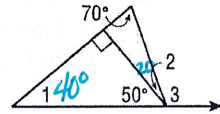
J right



$$2^2 + 2^2 = c^2$$

$$\sqrt{8} = c$$

Use the figure for Questions 3 and 4.



**A**

15. What is  $m\angle 1$ ?

**A 40**

B 50

C 70

D 90

**J**

16. What is  $m\angle 3$ ?

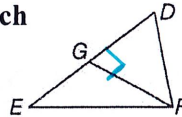
F 40

G 70

H 90

**J 110**

For Questions 5-7, refer to the figure to determine which is a true statement for the given information.



17.  $\overline{FG}$  is an altitude.

**A  $\angle DGF$  is a right angle.**

B  $DF = EF$

C  $DG = GE$

D  $\angle DFG \cong \angle EFG$

**C**

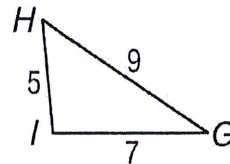
18. Name the angle with the greatest measure in  $\triangle GHI$ .

A  $\angle G$

B  $\angle H$

**C  $\angle I$**

D cannot tell



19. Which of the following sets of numbers can be the lengths of the sides of a triangle?

# Honors Math 2 Semester 1 PRACTICE TEST

C

A 12, 9, 2

B 11, 12, 23

C 2, 3, 4

D  $\sqrt{3}, \sqrt{5}, \sqrt{18}$

B

20. Find the sum of the measures of the interior angles of a convex 45-gon.

A 8100

B 7740

C 360

D 172

$$(45 - 2) 180$$

G

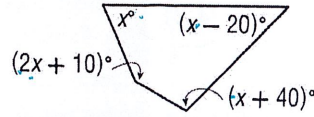
21. Find the value of  $x$ .

F 30

G 66

H 102

J 138



$$5x + 30 = 360$$

$$x = 66$$

C

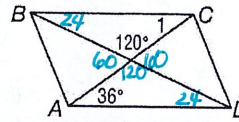
22. For parallelogram  $ABCD$ , find  $m\angle 1$ .

A 60

B 54

C 36

D 18



E

23.  $ABCD$  is a parallelogram with diagonals intersecting at  $E$ . If  $AE = 3x + 12$  and  $EC = 27$ , find the value of  $x$ .

F 5

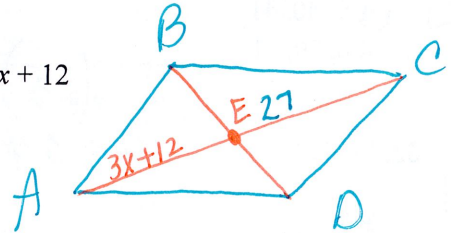
G 17

H 27

J 47

$$3x + 12 = 27$$

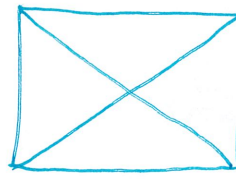
$$3x = 15$$



D

24. Which of the following is true for all rectangles?

- A The diagonals are perpendicular.
- B The diagonals bisect the angles.
- C The consecutive sides are congruent.
- D The consecutive sides are perpendicular.



C

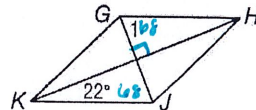
25. For rhombus  $GHJK$ , find  $m\angle 1$ .

A 22

B 44

C 68

D 90



D

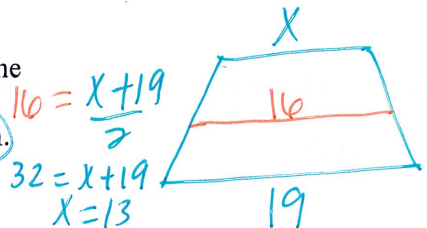
26. The length of one base of a trapezoid is 19 inches and the length of the median is 16 inches. Find the length of the other base.

A 35 in.

B 19 in.

C 17.5 in.

D 13 in.



$$16 = \frac{X + 19}{2}$$

$$32 = X + 19$$

$$X = 13$$

B

27. If  $\triangle PQR \sim \triangle STU$ , find the value of  $x$ .

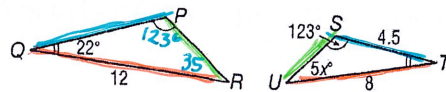
A 4.4

B 7

C 24.6

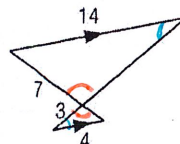
D 35

$$5x = 35$$



28. Name the theorem or postulate that can be used to

AA Sim





# Honors Math 2 Semester 1 PRACTICE TEST

**F**

prove that these triangles are similar.

- F** AA Similarity
- G** SSS Similarity

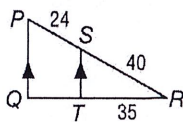
- H** SAS Similarity
- J** SSA Similarity

**J**

29. Find  $QT$ .

- F** 15
- G** 17

- H** 19
- J** 21



$$\frac{24}{x} = \frac{40}{35}$$

$$40x = 840$$

$$x = 21$$

**J**

30. Find  $x$ .

- F** 3
- G** 4

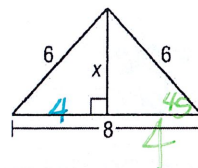
$$4^2 + x^2 = 6^2$$

$$16 + x^2 = 36$$

$$x^2 = 20$$

$$x = \sqrt{20} = 2\sqrt{5}$$

- H**  $4\sqrt{3}$
- J**  $2\sqrt{5}$



**A**

31. Which set of measures could represent the lengths of the sides of a right triangle?

- A** 9, 40, 41
- B** 8, 30, 31

- C** 7, 8, 15
- D**  $\sqrt{2}, \sqrt{3}, \sqrt{6}$

$$(\sqrt{2})^2 + (\sqrt{3})^2 = (\sqrt{6})^2$$

$$2 + 3 \neq 6$$

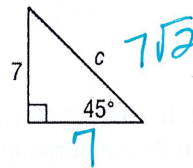
$$7^2 + 8^2 = 15^2$$

**G**

32. Find  $c$ .

- F** 7
- G**  $7\sqrt{2}$

- H**  $7\sqrt{3}$
- J** 14

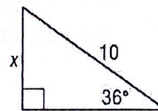


**B**

33. Find  $x$  to the nearest tenth.

- A** 5.8
- B** 5.9

- C** 8.1
- D** 17.3



$$\sin 36 = \frac{x}{10}$$

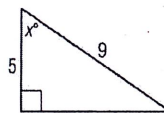
$$x = 10 \cdot \sin 36$$

**F**

34. Find  $x$  to the nearest degree.

- F** 56
- G** 45

- H** 34
- J** 29

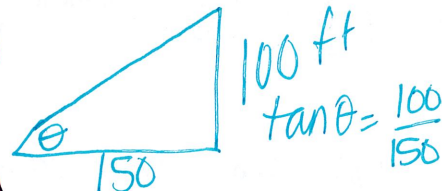


$$\cos x = \frac{5}{9}$$

**D**

35. Find the angle of elevation of the sun if a building 100 feet tall casts a shadow 150 feet long. Round to the nearest degree.

- A**  $60^\circ$
- B**  $48^\circ$
- C**  $42^\circ$
- D**  $34^\circ$



$$\tan \theta = \frac{100}{150}$$

**D**

36. Find the component form of  $\overrightarrow{CD}$  with  $C(5, -7)$  and  $D(-3, 9)$ .

- A**  $\langle -2, 2 \rangle$
- B**  $\langle 2, 2 \rangle$
- C**  $\langle 8, -16 \rangle$
- D**  $\langle -8, 16 \rangle$

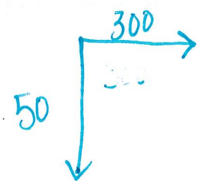
$$\langle -3 - 5, 9 - (-7) \rangle$$

$$\langle -8, 16 \rangle$$

**H**

37. A pilot is flying due east at a speed of 300 miles per hour and wind is blowing due north at 50 miles per hour. What is the magnitude of the resultant velocity of the plane?

- F** 300 mph
- G** 350 mph
- H** about 304 mph
- J** 2500 mph



$$300^2 + 50^2 = c^2$$

**C**

38. In  $\triangle CDE$ ,  $m\angle C = 52$ ,  $m\angle D = 17$ , and  $e = 28.6$ . Find  $c$  to the nearest tenth.

$$\frac{\sin 17}{28.6} = \frac{\sin 52}{c}$$

$$c \cdot \sin 17 = 28.6 \cdot \sin 52$$

$$c = 24.14$$

# Honors Math 2 Semester 1 PRACTICE TEST

C

A 77.1

B 49.1

C 24.1

D 18.4

G

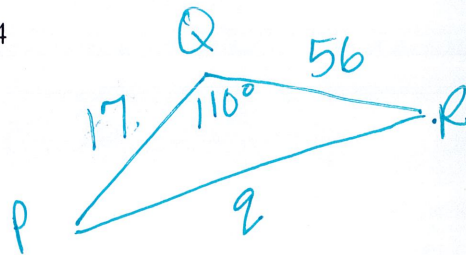
39. In  $\triangle PQR$ ,  $p = 56$ ,  $r = 17$ , and  $m\angle Q = 110$ . Find  $q$  to the nearest tenth.

F 4076.2

G 63.8

H 52.6

J 3.1



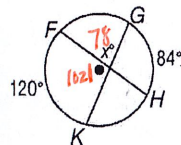
40. Find  $x$ .

F 78

G 90

H 102

J 156



$$m\angle 1 = \frac{1}{2}(120 + 84)$$

F

J

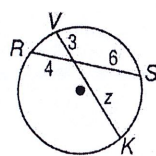
41. Find  $z$ .

F 2

G 4.5

H 7

J 8



$$4 \cdot 6 = 3 \cdot z$$

$$24 = 3z$$

$$z = 8$$

E

42.  $EFGH$  is a quadrilateral inscribed in  $\odot P$  with  $m\angle E = 72$  and  $m\angle F = 49$ . Find  $m\angle H$ .

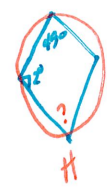
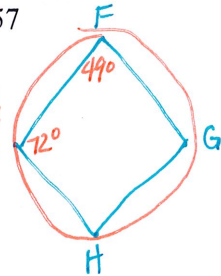
F 131

G 108

H 90

J 57

opposite angles  
supplement



$$c^2 = a^2 + b^2 - 2ab \cos C$$

$$q^2 = 17^2 + 56^2 - 2(17)(56) \cos 110^\circ$$

$$Q^2 = 289 + 3136 - 1904 \cos 110$$

$$Q^2 = 3425 - 1904 \cos 110$$

$$Q^2 = 4076.21$$

$$63.8$$

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