PARALLEL LINES & PROPORTIONAL SEGMENTS

Use the figure below to complete each statement in problems 1 and 2.

1. \[ \frac{RW}{WS} = \frac{RL}{WL} \]

2. \[ \frac{RW}{RS} = \frac{RT}{RT} \]

Find the value of ‘x’.

3. \[ x = \underline{x} \]

4. \[ x = \underline{x} \]

Refer to the figure below for exercises 5 and 6. Determine whether \( \overline{AB} \parallel \overline{YZ} \) under the given conditions.

5. YES or NO
   - \( XA = 6 \)
   - \( AY = 4 \)
   - \( XB = 8 \)
   - \( BZ = 5 \)

6. YES or NO
   - \( XB = 3 \)
   - \( BZ = 2 \)
   - \( AB = 6 \)
   - \( YZ = 10 \)

In \( \triangle ACB \) find ‘x’ so that \( \overline{DE} \parallel \overline{CB} \).

7. \[ x = \underline{x} \]

   - \( DC = 18 \)
   - \( AD = 6 \)
   - \( AE = 12 \)
   - \( EB = x - 3 \)
Find the values of ‘x’ and ‘y’.

8. \( x = \) __________
   \( y = \) __________

9. \( x = \) __________
   \( y = \) __________

In the figure at the right, \( \overline{YA} \parallel \overline{OE} \parallel \overline{BR} \). Find the values of ‘x’ and ‘y’ if \( YO = 4 \), \( ER = 16 \), and \( AR = 24 \).

10. \( x = \) __________

11. \( x = \) __________
REVIEW PROBLEMS

Determine whether the pair of triangles is similar. Justify your answer with a reason. If similarity exists, write a similarity statement.

12. YES or NO

If yes, how? __________

\( \triangle _____ \sim \triangle _____ \)

Each pair of figures is similar. Find the values of ‘x’ and ‘y’.

13. \( x = \) __________
    \( y = \) __________

14. \( x = \) __________
    \( y = \) __________

TAKS PRACTICE

Find the correct answer to each of the following. Clearly circle/bubble in your answer as necessary.

15. The cost for an advertisement during a television show has doubled since the show’s rating has improved. The show’s rating is

A. The ordered pair
B. The independent quantity
C. The dependent quantity
D. Two times what it was before

16. Earth is tilted on its axis at a 23.4° angle. During the summer in the United States, Earth’s axis is tilting toward the sun. During the winter, the axis is tilting away from the sun. Which two values are given in the order: independent quantity, dependent quantity?

A. The seasons depend on whether the Earth’s axis is tilting toward or away from the sun.
B. The angle at which Earth tilts depends on the season.
C. The seasons depend on the angle at which Earth tilts.
D. The angle at which Earth tilts depends on which direction the Earth’s axis is pointing.
17. Which of the relationships below is not a function?

   Day of the year: $1 \leq r \leq 365$
   Day of the month: $1 \leq m \leq 31$
   Day of the week: $1 \leq w \leq 7$

   A. (day of the year, month)
   B. (day of the year, day of the month)
   C. (day of the week, day of the month)
   D. (day of the month, day of the week)

18. Josh wants to invest an amount of money in an account that earns 5% annual interest. Which of these is a description of a functional relationship for the amount of interest earned in one year?

   A. The amount of interest he will earn depends on the size of the bank.
   B. The amount of interest he will earn depends on the invested amount.
   C. The invested amount depends on the interest rate.
   D. The amount invested depends on the amount of interest he will earn.

19. To join a health club, Jennifer must pay a $99 startup fee and a $45 fee for each month she is a member. Which equation describes $y$, the total cost of the club membership?

   A. $y = 99 + 45$
   B. $y = 45 + 99x$
   C. $x = 99 + 45y$
   D. $y = 99 + 45x$

20. Which of the situations could not possibly be represented by the graph?

   A. A plane approaching its destination
   B. Combined weight of $x$ number of people
   C. Summer morning temperature
   D. Price of pizza with extra toppings