

Grade 8 CRCT Review (Accelerated Math 1)

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- ___ 1. Find the two square roots of the number 144.
a. 36, -36
b. 72, -72
c. 11, -11
d. 12, -12
- ___ 2. A square mosaic is made of small glass squares. If there are 196 small squares in the mosaic, how many are along an edge?
a. 98 squares
b. 49 squares
c. 14 squares
d. 16 squares
- ___ 3. A square room has a tiled floor with 81 square tiles. How many tiles are along an edge of the room?
a. 9 tiles
b. 11 tiles
c. 40 tiles
d. 20 tiles
- ___ 4. The square root $\sqrt{103}$ is between two integers. Name the integers.
a. 102, 104
b. 15, 16
c. 10, 11
d. 25, 26
- ___ 5. Elena needs to cut a square piece of wood with an area of 69 square inches. How long should the sides of the square be, rounded to the nearest tenth of an inch?
a. 7 in.
b. 8.3 in.
c. 34.5 in.
d. 17.3 in.
- ___ 6. A chessboard is made of 64 small squares. Suppose a single square on a chessboard has an area of 6 square centimeters. How long is one side of the entire board, rounded to the nearest tenth of a centimeter?
a. 2.4 cm
b. 156.8 cm
c. 9.8 cm
d. 19.6 cm
- ___ 7. Evaluate the expression $-4\sqrt{-14 + 50}$. If necessary, round your answer to the nearest tenth.
a. 50
b. -24
c. 32
d. -28.3
- ___ 8. Classify the number $\frac{\sqrt{16}}{2}$ as rational or irrational.
a. irrational
b. rational
- ___ 9. Classify the number $\frac{\sqrt{43}}{8}$ as rational, irrational, or not a real number.
a. irrational
b. not a real number
c. rational
- ___ 10. Find a real number between $1\frac{3}{5}$ and $1\frac{4}{5}$.
a. $1\frac{2}{5}$
b. $1\frac{1}{15}$
c. $1\frac{7}{10}$
d. $2\frac{1}{4}$
- ___ 11. Write $(b)(b)(b)(b)(b)$ in exponential form.
a. 5^b
c. b^{-5}

b. b^5 d. b^6

___ 12. Write $2 \times 2 \times 2 \times 2$ in exponential form.

- a. 4^2 c. 2^5
 b. 2^3 d. 2^4

___ 13. Write 3 in exponential form.

- a. 3^0 c. 3^1
 b. 1^3 d. 3^2

___ 14. Evaluate $(-2)^2$.

- a. 0 c. -4
 b. 22 d. 4

___ 15. Evaluate 10^{-4} by extending the pattern in the table.

10^2	10^1	10^0	10^{-1}	10^{-2}
$10 \bullet 10$	10	1	$\frac{1}{10}$	$\frac{1}{10 \bullet 10}$
100	10	1	$\frac{1}{10} = 0.1$	$\frac{1}{100} = 0.01$

- a. 0.00001 c. 0.001
 b. 0.0001 d. -40

___ 16. Evaluate $(6)^{-2}$.

- a. -36 c. $-\frac{1}{36}$
 b. $\frac{1}{36}$ d. 36

___ 17. Evaluate $a^x - (b + c)^y$ for $a = 4$, $b = 2$, $c = 8$, $x = -1$, and $y = -2$.

- a. $\frac{1}{24}$ c. -96
 b. $\frac{3}{25}$ d. $\frac{6}{25}$

___ 18. Multiply. Write the product as a power.

- $12^5 \bullet 12^2$
 a. 12^{10} c. 12^7
 b. Cannot combine d. 12^3

___ 19. Divide. Write the quotient as a power.

- $\frac{13^9}{13^5}$
 a. 13^4 c. 13^{14}
 b. Cannot combine d. 52

___ 20. Simplify $(9^9)^{-8}$.

- a. 9^1 c. 81^{-8}
 b. 9^{-72} d. 9^{17}

___ 21. Write the number 6.54×10^7 in standard notation.

- a. 0.000000654
- b. 6,540,000
- c. 65,400,000
- d. 654,000,000

- ___ 22. Write the number 9.91×10^{-6} in standard notation.
- a. 0.0000991
 - b. 9,910,000
 - c. 0.00000991
 - d. 0.000000991

- ___ 23. Write the number 230,000 in scientific notation.
- a. 0.230×10^6
 - b. 2.30×10^6
 - c. 2.3×10^5
 - d. 23.0×10^4

- ___ 24. Write the number 0.000000001 in scientific notation.
- a. 0.01×10^{-6}
 - b. 00.1×10^{-8}
 - c. 0.001×10^{-6}
 - d. 1.0×10^{-9}

- ___ 25. Suppose a sheet of 100 stamps is 0.77 millimeters thick. If a stack of sheets contains 100,000 stamps, how many millimeters thick is the stack? Write the answer in scientific notation.
- a. 7.7×10^4 mm
 - b. 7.7×10^2 mm
 - c. 77.0×10^1 mm
 - d. 0.77×10^3 mm

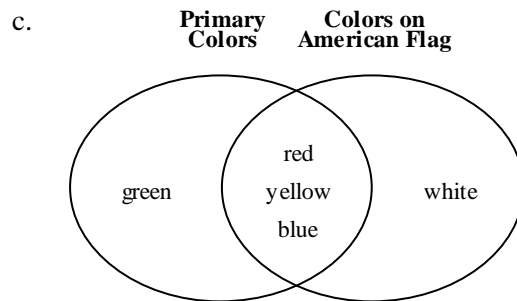
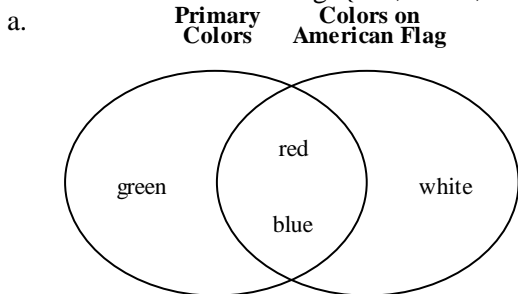
- ___ 26. If an average grape weighs 4.87 grams and a company purchases 1,000,000 grapes, how much will the grape shipment weigh in kilograms? Write the answer in scientific notation.
- a. 4.87×10^6 kg
 - b. 48.7×10^2 kg
 - c. 4.87×10^3 kg
 - d. 0.487×10^4 kg

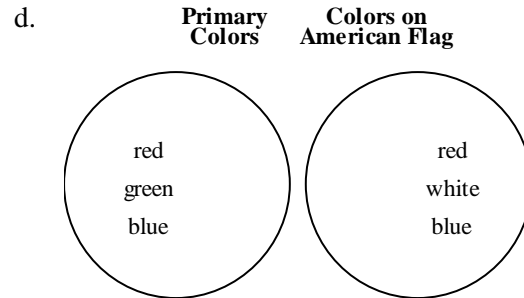
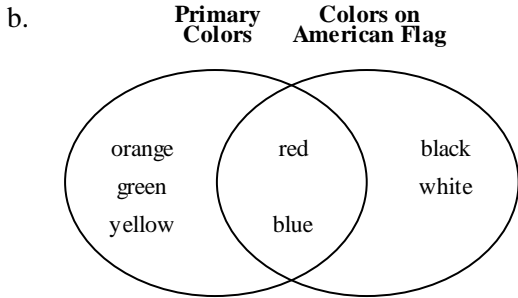
- ___ 27. The attendance at a parade was 6.73×10^4 people. The attendance at a rally was 6.75×10^4 people. Which event had the higher attendance?
- a. rally
 - b. parade

- ___ 28. The attendance at a college football game was 1.27×10^5 people. The attendance at a World Cup soccer match was 1.22×10^5 people. Which event had the higher attendance?
- a. soccer match
 - b. football game

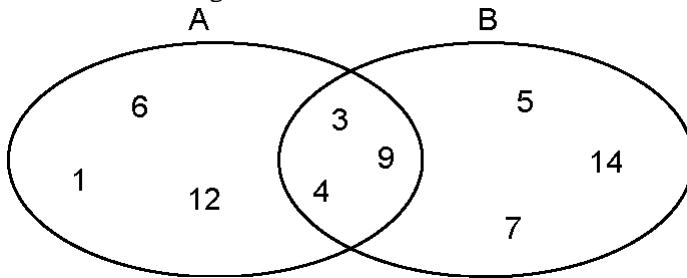
- ___ 29. Which is a Venn diagram that shows the relationship between the sets?

primary colors: {red, green, blue}
 colors in the American flag: {red, white, blue}



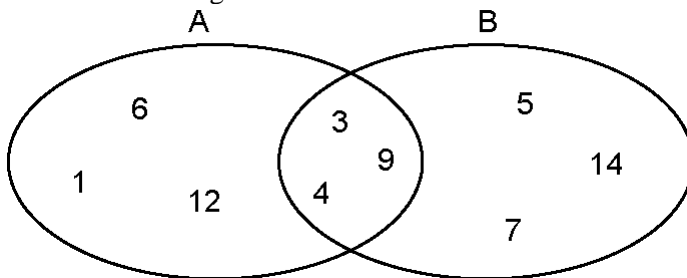


___ 30. Use the Venn diagram to find $A \cap B$.



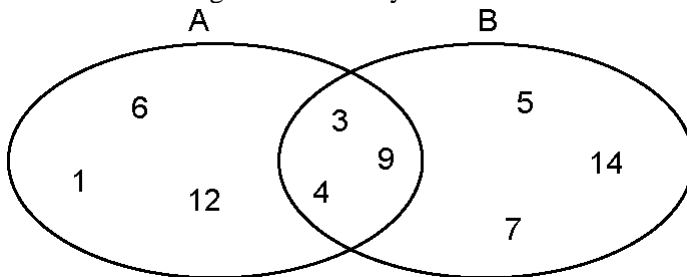
- | | |
|---|--------------------------------|
| a. $A \cap B = \{1, 3, 4, 5, 6, 7, 9, 12, 14\}$ | c. $A \cap B = \{\}$ |
| b. $A \cap B = \{3, 4, 9\}$ | d. $A \cap B = \{3, 4, 5, 9\}$ |

___ 31. Use the Venn diagram to find $A \cup B$.



- | | |
|-----------------------------|---|
| a. $A \cup B = \{3, 4, 9\}$ | c. $A \cup B = \{1, 5, 6, 7, 12, 14\}$ |
| b. $A \cup B = \{\}$ | d. $A \cup B = \{1, 3, 4, 5, 6, 7, 9, 12, 14\}$ |

___ 32. Use the Venn diagram to find any subsets.



- | | | |
|------------------|------------------|---------|
| a. $A \subset B$ | b. $B \subset A$ | c. None |
|------------------|------------------|---------|

___ 33. Use the Venn diagram to find $L \cap M$.

$Q = \{\text{rational numbers}\}$

$Z = \{\text{integers}\}$

a. $Q \cup Z = Z$

b. $Q \cup Z = \{\text{real numbers}\}$

c. $Q \cup Z = \{\}$

d. $Q \cup Z = Q$

42. Find the union of the sets.

$M = \{8, 10, 12, 14\}$

$P = \{10, 11, 12\}$

a. $M \cup P = \{10, 12\}$

b. $M \cup P = \emptyset$

c. $M \cup P = \{8, 10, 11, 12, 14\}$

d. $M \cup P = \{8, 10, 12, 14\}$

43. Find the union of the sets.

$H = \{-9, -7, -5, -3\}$

$O = \{\text{odd integers}\}$

a. $H \cup O = \{-9, -7, -5, -3\}$

b. $H \cup O = \{\text{odd integers}\}$

c. $H \cup O = \{\}$

d. $H \cup O = \{\text{integers}\}$

44. Find the union of the sets.

$J = \{x|x > 4\}$

$Y = \{x|x \leq 10\}$

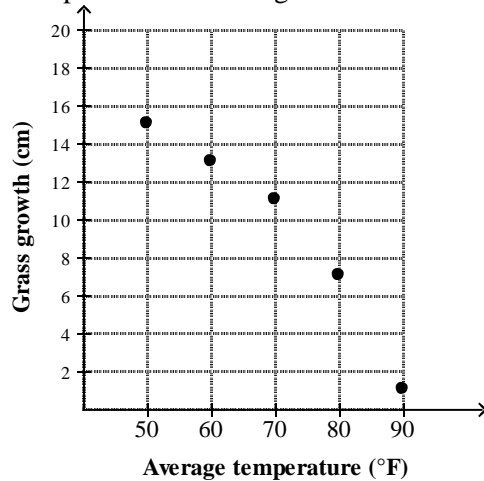
a. $J \cup Y = \{\text{real numbers}\}$

b. $J \cup Y = \{x|4 < x \leq 10\}$

c. $J \cup Y = \{\}$

d. $J \cup Y = \{\text{rational numbers}\}$

45. A lawn specialist measured the average temperature during different growing periods and the amount that the grass grew during each period. The scatter plot shows the results of his study. Based on this plot, which is the best prediction for the growth that would occur if the temperature were 55°F ?



a. 14 centimeters

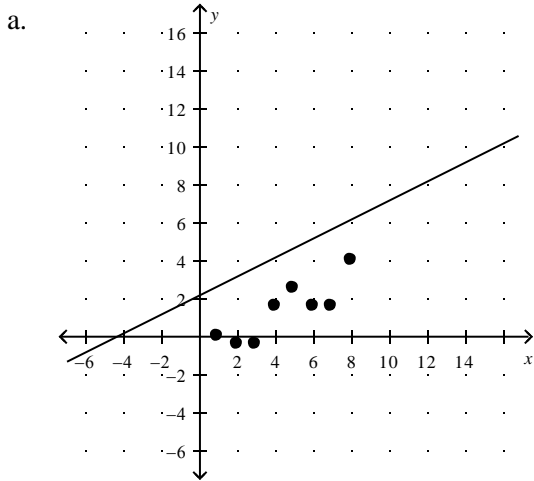
b. 5.6 centimeters

c. 10 centimeters

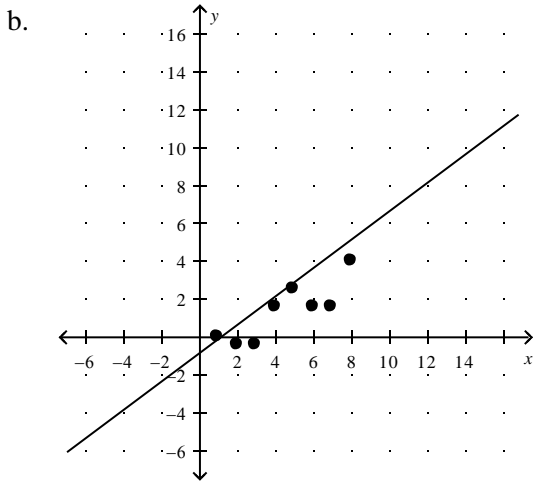
d. 17.5 centimeters

46. Plot the data and find a line of best fit.

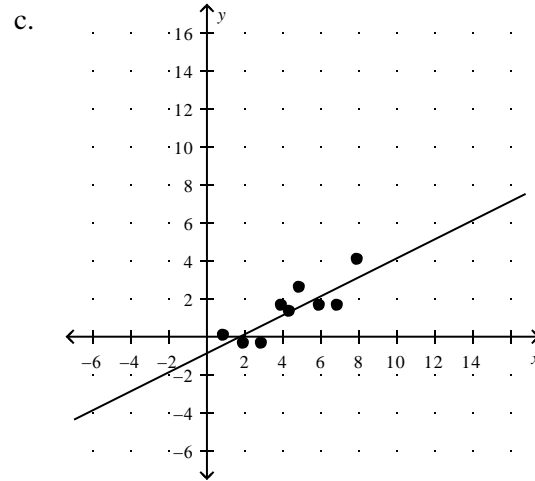
x	3	6	5	2	7	4	8	1
y	-0.5	1.5	2.5	-0.5	1.5	1.5	4	0



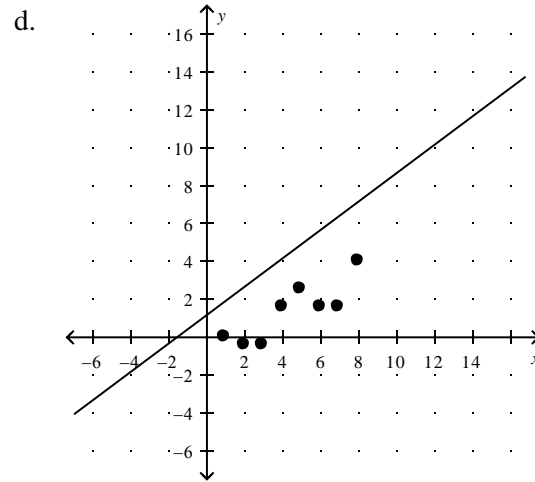
$$y = 0.5x - 2$$



$$y = 0.75x - 1$$



$$y = 0.5x - 1$$

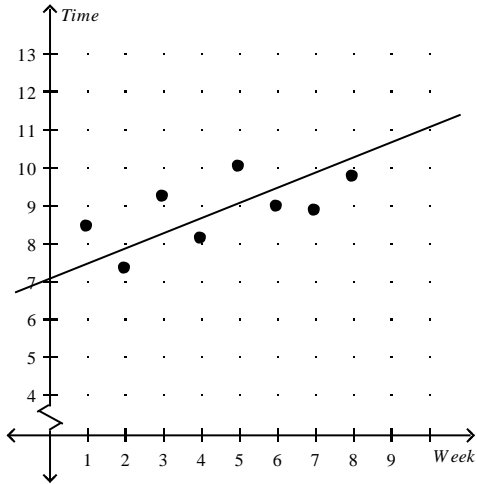


$$y = 0.75x + 1$$

47. Lionel observes that traffic is getting worse and it takes him longer to get to work. He records once a week the following data for several weeks. Find a line of best fit. Use the equation of the line to predict how long it will take him to get to work in Week 10.

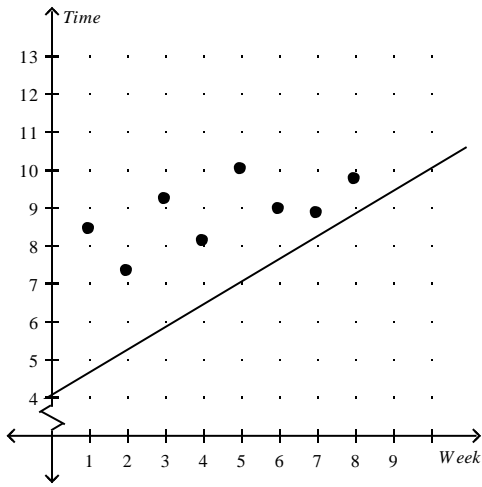
Week	1	2	3	4	5	6	7	8
Time (min)	8.4	7.3	9.2	8.1	10	8.9	8.8	9.7

a.



It will take him about 11 minutes to get to work in Week 10.

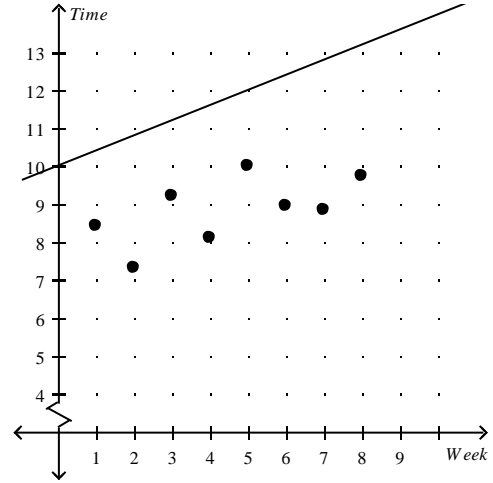
b.



$$y = 1.2x + 4$$

It will take him about 16 minutes to get to work in Week 10.

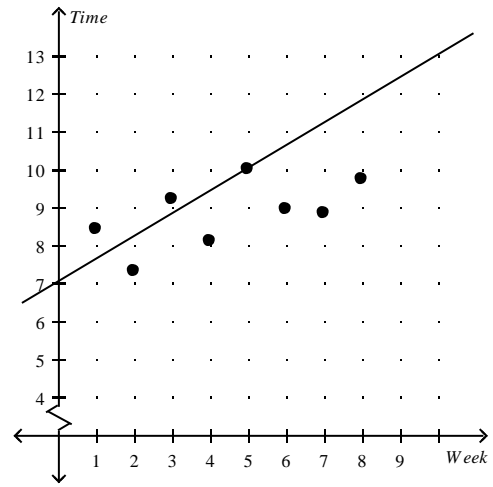
$$y = 0.4x + 7 \text{ c.}$$



$$y = 0.4x + 10$$

It will take him about 14 minutes to get to work in Week 10.

d.



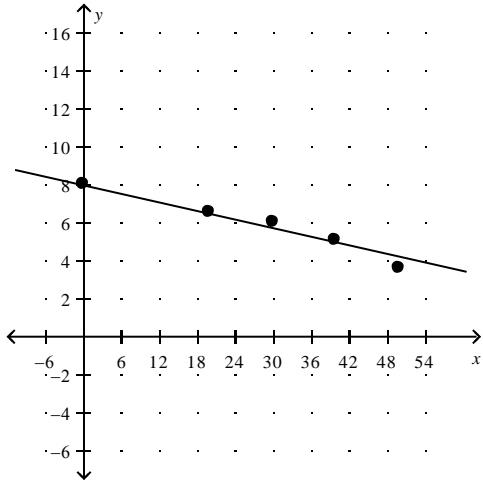
$$y = 1.2x + 7$$

It will take him about 19 minutes to get to work in Week 10.

48. The table shows the time it takes for a candle to burn. Plot the data on a graph. Then write the equation of a line of best fit and graph the line.

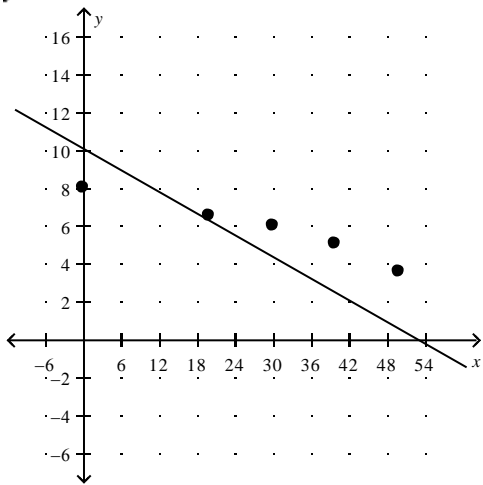
Time (min)	0	20	30	40	50
Height (in)	8	6.5	6	5	3.5

a.



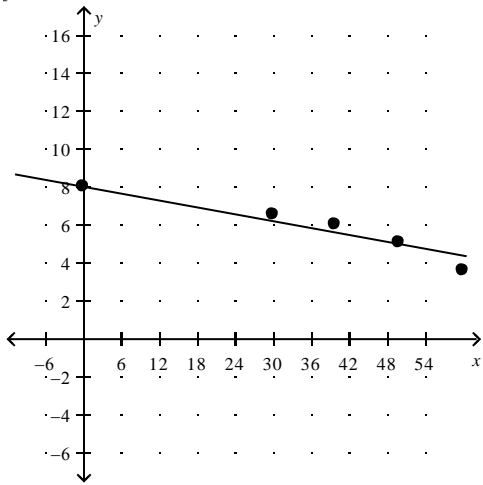
$$y = -0.075x + 7.9$$

b.

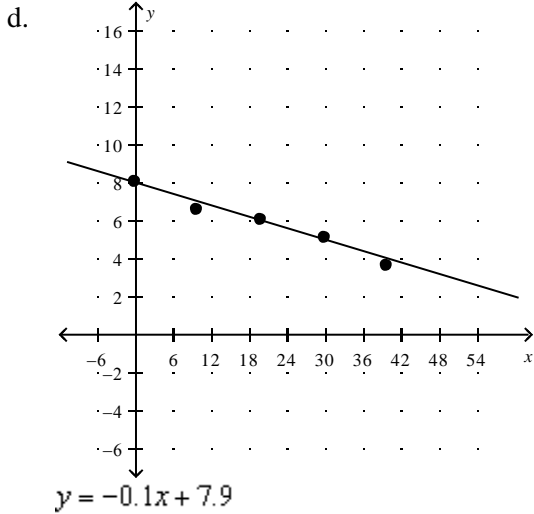


$$y = -0.19x + 10$$

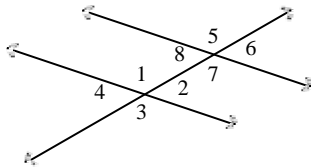
c.



$$y = -0.06x + 7.9$$

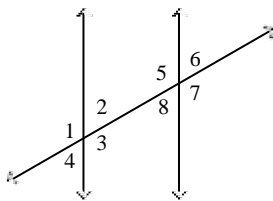


49. In the figure, the angles are formed by a transversal and two parallel lines. Which angles seem to be congruent?



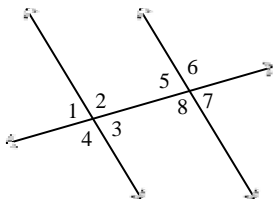
- | | |
|---|---|
| a. $\angle 1 \cong \angle 3 \cong \angle 5 \cong \angle 7$;
$\angle 2 \cong \angle 4 \cong \angle 6 \cong \angle 8$ | c. $\angle 1 \cong \angle 2 \cong \angle 3 \cong \angle 4$;
$\angle 5 \cong \angle 6 \cong \angle 7 \cong \angle 8$ |
| b. $\angle 1 \cong \angle 4 \cong \angle 5 \cong \angle 8$;
$\angle 2 \cong \angle 3 \cong \angle 6 \cong \angle 7$ | d. $\angle 1 \cong \angle 2 \cong \angle 5 \cong \angle 6$;
$\angle 3 \cong \angle 4 \cong \angle 7 \cong \angle 8$ |

50. The angles are formed by a transversal and two parallel lines. Which angles seem to be congruent?



- | | |
|---|---|
| a. $\angle 1 \cong \angle 3 \cong \angle 5 \cong \angle 7$;
$\angle 2 \cong \angle 4 \cong \angle 6 \cong \angle 8$ | c. $\angle 1 \cong \angle 2 \cong \angle 5 \cong \angle 6$;
$\angle 3 \cong \angle 4 \cong \angle 7 \cong \angle 8$ |
| b. $\angle 1 \cong \angle 4 \cong \angle 5 \cong \angle 8$;
$\angle 2 \cong \angle 3 \cong \angle 6 \cong \angle 7$ | d. $\angle 1 \cong \angle 2 \cong \angle 3 \cong \angle 4$;
$\angle 5 \cong \angle 6 \cong \angle 7 \cong \angle 8$ |

51. The angles are formed by a transversal and two parallel lines. Which angles seem to be congruent?

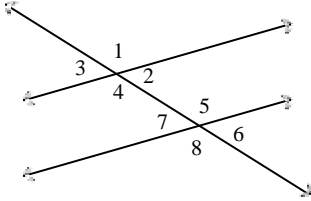


- | | |
|--|--|
| a. $\angle 1 \cong \angle 2 \cong \angle 5 \cong \angle 6$; | c. $\angle 1 \cong \angle 2 \cong \angle 3 \cong \angle 4$; |
|--|--|

- $\angle 3 \cong \angle 4 \cong \angle 7 \cong \angle 8$
 b. $\angle 1 \cong \angle 4 \cong \angle 5 \cong \angle 8$;
 $\angle 2 \cong \angle 3 \cong \angle 6 \cong \angle 7$

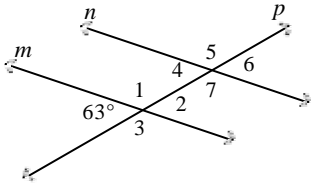
- $\angle 5 \cong \angle 6 \cong \angle 7 \cong \angle 8$
 d. $\angle 1 \cong \angle 3 \cong \angle 5 \cong \angle 7$;
 $\angle 2 \cong \angle 4 \cong \angle 6 \cong \angle 8$

___ 52. The angles are formed by a transversal and two parallel lines. Which angles seem to be congruent?



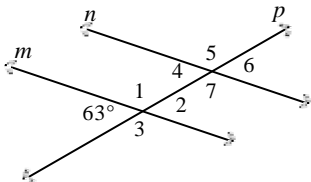
- a. $\angle 1 \cong \angle 4 \cong \angle 5 \cong \angle 8$;
 $\angle 2 \cong \angle 3 \cong \angle 6 \cong \angle 7$
 b. $\angle 1 \cong \angle 2 \cong \angle 3 \cong \angle 4$;
 $\angle 5 \cong \angle 6 \cong \angle 7 \cong \angle 8$
 c. $\angle 1 \cong \angle 3 \cong \angle 5 \cong \angle 7$;
 $\angle 2 \cong \angle 4 \cong \angle 6 \cong \angle 8$
 d. $\angle 1 \cong \angle 2 \cong \angle 5 \cong \angle 6$;
 $\angle 3 \cong \angle 4 \cong \angle 7 \cong \angle 8$

___ 53. In the figure, line $m \parallel$ line n . Find the measure of $\angle 4$.



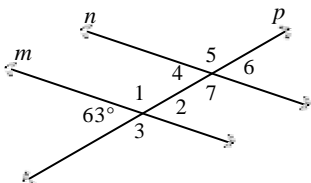
- a. 63°
 b. 117°
 c. 27°
 d. 153°

___ 54. In the figure, line $m \parallel$ line n . Find the measure of $\angle 1$.



- a. 117°
 b. 27°
 c. 153°
 d. 63°

___ 55. In the figure, line $m \parallel$ line n . Find the measure of $\angle 7$.



- a. 63°
 b. 27°
 c. 117°
 d. 153°

___ 56. In the figure, line $g \parallel$ line h . Find the measure of $\angle 4$.

