

Fall 2015

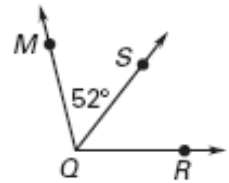
Choose the best answer

1. \overline{J} bisects $\angle HIK$. Classify $\angle HIK$ if $m\angle HIJ = 50^\circ$.

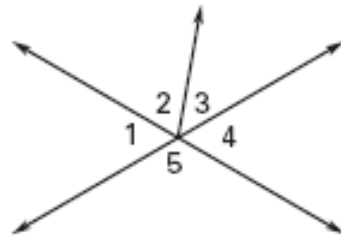
- A acute C right
 B obtuse D straight

Multiple Choice \overrightarrow{QS} bisects $\angle MQR$. What is the $m\angle MQR$?

- (A) 26° (B) 52°
 (C) 104° (D) 13°
 (E) 38°



Refer to the diagram to answer 3-4.



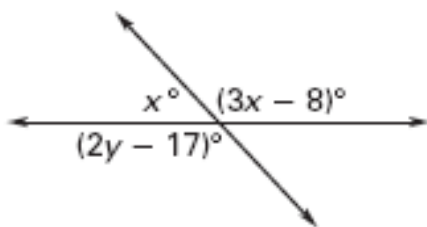
3. Which angles are vertical angles?

- (A) $\angle 1$ and $\angle 2$ (B) $\angle 1$ and $\angle 5$
 (C) $\angle 3$ and $\angle 5$ (D) $\angle 1$ and $\angle 4$
 (E) $\angle 4$ and $\angle 5$

4. Which angles are supplementary?

- (A) $\angle 1$ and $\angle 4$ (B) $\angle 4$ and $\angle 5$
 (C) $\angle 1$ and $\angle 5$ (D) B and C
 (E) all of these

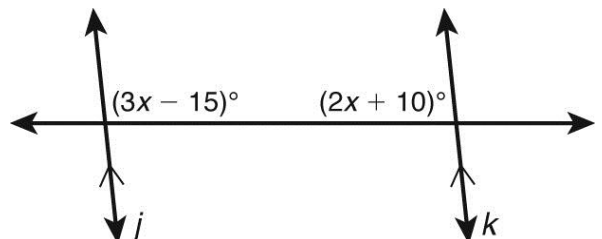
5. In the diagram, what are the values of x and y ?



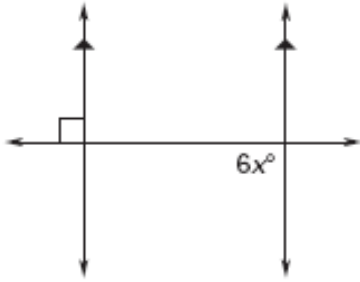
- (A) $x = 47, y = 75$ (B) $x = 47, y = 74$
 (C) $x = 75, y = 47$ (D) $x = 71, y = 51$
 (E) $x = 45, y = 77$

6. If $j \parallel k$, which could be one of the angle measures?

- A 25° C 60°
 B 37° D 84°



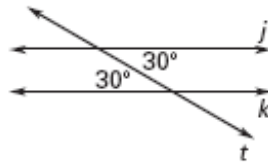
7. In the diagram, find the value of x .



- (A) 24 (B) 12 (C) 30 (D) 90
(E) 15

9. **Multiple Choice**

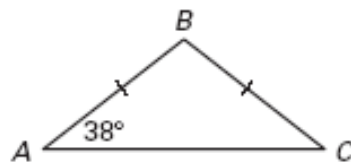
Which theorem or postulate shows $j \parallel k$?



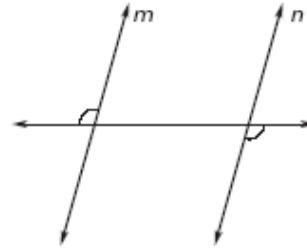
- (A) Alt. Int. \angle Converse
(B) Cons. Int. \angle Converse
(C) Alt. Ext. \angle Converse
(D) Corresp. \angle Converse
(E) None of these

11. What is the measure of $\angle B$?

- (A) 90°
(B) 38°
(C) 104°
(D) 52°
(E) Cannot be determined

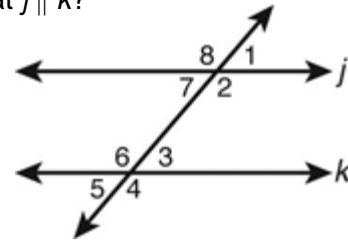


8. State the postulate or theorem you would use to prove that lines m and n are parallel.



- (A) alternate interior angles converse
(B) alternate exterior angles converse
(C) consecutive interior angles converse
(D) corresponding angles converse
(E) vertical angles theorem

10. Which information CANNOT be used to prove that $j \parallel k$?



- A) $\angle 7 \cong \angle 3$
B) $\angle 7$ is supplementary to $\angle 6$.
C) $\angle 1 \cong \angle 5$
D) $\angle 1$ is supplementary to $\angle 2$

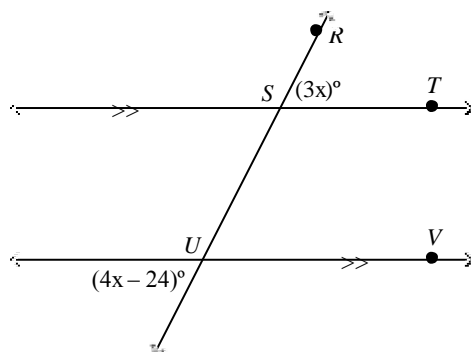
12. Which best describes the triangle in #13

- A) Acute Isosceles
B) Obtuse Isosceles
C) Acute Scalene
D) Right Isosceles

D) Obtuse, Isosceles

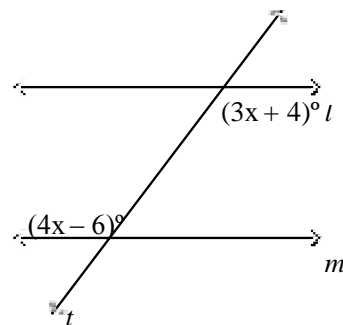
21. What is $m\angle RST$?

- A) 24
- B) 72
- C) 108
- D) 180



22. If $l \parallel m$, which could be one of the angle measures?

- A 7° C 34°
- B 10° D 44°



Factor the following quadratics.

30. $x^2 + 11x + 30$

31. $x^2 - 5x + 6$

32. $2x^2 + 17x + 2$

33. $-2x^2 - 5x - 3$

34. $-6x^2 - 11x - 3$

Solve the following quadratics.

35. $f(x) = 3x^2 - 12x$

36. $x^2 - 15x = -54$

37. $2x^2 + 18x = -28$

38. $f(x) = 2x^2 + x - 10$

39. $25x^2 + 400 = 0$

Factor each trinomial.

40. $x^2 + 6x + 8$

41. $x^2 + 5x + 6$

42. $x^2 - 5x - 24$

Find the zeros of each function by factoring.

43. $f(x) = x^2 - 8x + 12$

44. $g(x) = 3x^2 + 12x$

Solve each equation.

45. $3x^2 - 4 = 68$

46. $x^2 - 10x + 25 = 27$

Complete the square for each equation.

47. $x^2 - 2x + \underline{\hspace{1cm}}$

48. $x^2 + 5x + \underline{\hspace{1cm}}$

49. Write the function in vertex form and identify the vertex: $f(x) = x^2 - 10x - 13$

Matching: Match the correct word to its definition.

A. parabola

B. vertex

C. axis of symmetry

D. maximum

E. minimum

F. reflection

_____ 50. The highest point on the graph and is determined by the y value.

_____ 51. The highest or lowest point on the graph of a quadratic function.

_____ 52. A transformation in which the graph is flipped over the x-axis.

_____ 53. The lowest point on the graph and is determined by the y value.

_____ 54. A “u-shaped” graph that models a quadratic function.

_____ 55. The line through the vertex of a parabola that divides the parabola into 2 congruent parts.

Solve the following quadratics.

56. $x^2 - 24 = -10x$

57. $7x^2 - 6 = -97$

58. $(x - 2)^2 - 12 = 0$

59. Identify the axis of symmetry, vertex and max or min for the quadratic function $f(x) = x^2 + 6x + 4$.

AOS: _____

Vertex: _____

Max or Min and value: _____

60. Solve for x. $3x^2 + 27 = 0$

61. Write the conjugate of $1 + 14i$.

62. Simplify. $\sqrt{-144}$

63. Solve for x. $x^2 + 49 = 0$

64. Simplify. $(4 - 2i) + (-4 - 5i)$

65. Simplify. $(3 - i) - (-3 + i)$

66. Simplify. $(3 - 5i)(2 + 9i)$

67. Solve for x. $2x^2 + 200 = 100$

68. Simplify. $\frac{2 + 3i}{4 - i}$

69. Graph $y = (x - 1)^2 + 3$

70. Graph $y = 2x^2 - 4x + 1$

71. $y = -(x - 1)(x - 4)$

