

1. If  $7 - 3i$  is one root of a quadratic equation with real coefficients, find the sum of the roots of the equation and find the product of the roots of the equation.

1.

2. Two social studies classes took the same current events examination that was scored on the basis of 100 points. Mr. Wong's class had a median score of 78 and a range of 4 points, while Ms. Rizzo's class had a median score of 78 and a range of 22 points. Explain how these classes could have the same median score while having very different ranges.

2.

3. A triangle has vertices  $(-2, 3)$ ,  $(3, 1)$ , and  $(-1, -4)$ . Which of the following ordered pairs represent the vertices of the image triangle after a dilation by a factor of 1.5 and a translation 4 units right?

- (1)  $(1, 8.5)$ ,  $(8.5, 5.5)$ ,  $(2.5, -2)$   
 (2)  $(-7, 4.5)$ ,  $(0.5, 1.5)$ ,  $(-5.5, -6)$   
 (3)  $(1, 4.5)$ ,  $(8.5, 1.5)$ ,  $(2.5, -6)$   
 (4)  $(1, 4.5)$ ,  $(8.5, 1.5)$ ,  $(3.5, -6)$

4. A medication is eliminated from the body at a rate of about 15% per hour. Which function models the elimination of 35 milligrams of this medication from the bloodstream?

- (1)  $y = 35(0.15)^x$     (3)  $y = (35 - 0.15)^x$   
 (2)  $y = 35(1 - 0.15)^x$     (4)  $y = 35^{0.15x}$

3.

4.

5. In triangle  $ABC$ ,  $AB = 5.1$ ,  $BC = 6.4$ , and  $AC = 4.7$ . What is the measure of the largest angle to the nearest degree?

5.

6. In a survey of 1200 people, 68% favored Brand X cola over all other brands of cola. What is the probability that 8 people chosen at random from this survey all favor Brand X cola?

6.

7. The coordinates of quadrilateral  $JKLM$  are  $J(1,-2)$ ,  $K(13,4)$ ,  $L(6,8)$ , and  $M(-2,4)$ . Prove that quadrilateral  $JKLM$  is a trapezoid but *not* an isosceles trapezoid. [The use of the grid is optional.]

