

Mathematics Algebra I Benchmark Assessment

- 22 What are the reasonable domain and range of the quadratic function $f(x) = (x + 11.7)(x + 5.7)$?
- (A) domain: $x \geq 8.7$
range: $f(x) \geq -9$
 - (B) domain: All real numbers
range: $f(x) \geq 8.7$
 - (C) domain: $-11.7 \leq x \leq -5.7$
range: $-9 \leq f(x) \leq 0$
 - (D) domain: All real numbers
range: $f(x) \geq -9$

- 23 Which of the following is the axis of symmetry of the parabola $f(x) = x^2 + 2x - 15$?
- (A) $x = 1$
 - (B) $y = 1$
 - (C) $x = -1$
 - (D) $y = -1$

- 24 The student council hosts fund-raisers in the fall and spring. For the fall fund-raiser, they will spend \$60 to organize the event and sell tickets to the event for \$6 a piece. The number of dollars raised at the fall fund-raiser is given by the function $f(x)$, where x is the number of tickets sold. The number of dollars raised at the spring fund-raiser is given by the function $s(x) = 5x - 75$, where x is the number of tickets sold.

Which of the following statements **best** compares the fall and spring fund-raisers?

- (A) Fewer tickets need to be sold for the spring fund-raiser than for the fall fund-raiser to regain its costs, because the y -intercept of $s(x)$ is less than the y -intercept of $f(x)$.
- (B) Fewer tickets need to be sold for the spring fund-raiser than for the fall fund-raiser to regain its costs, because the x -intercept of $s(x)$ is less than the x -intercept of $f(x)$.
- (C) More tickets need to be sold for the spring fund-raiser than for the fall fund-raiser to regain its costs, because the y -intercept of $s(x)$ is greater than the y -intercept of $f(x)$.
- (D) More tickets need to be sold for the spring fund-raiser than for the fall fund-raiser to regain its costs, because the x -intercept of $s(x)$ is greater than the x -intercept of $f(x)$.