

Question ID 1e2ce9ac

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear inequalities in one or two variables	<div><div></div><div></div><div></div></div>

ID: 1e2ce9ac

Julissa needs at least **100** hours of flight time to get her private pilot certification. If Julissa already has **86** hours of flight time, what is the minimum number of additional hours of flight time Julissa needs to get her private pilot certification?

- A. **14**
- B. **76**
- C. **86**
- D. **186**

ID: 1e2ce9ac Answer

Correct Answer: A

Rationale

Choice A is correct. It's given that Julissa already has 86 hours of flight time. Let x represent the number of additional hours of flight time Julissa needs to get her private pilot certification. After completing x hours of flight time, Julissa will have completed a total of $86 + x$ hours of flight time. It's given that Julissa needs at least 100 hours of flight time to get her private pilot certification. Therefore, $86 + x \geq 100$. Subtracting 86 from both sides of this inequality yields $x \geq 14$. Thus, 14 is the minimum number of additional hours of flight time Julissa needs to get her private pilot certification.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect. This is the number of hours of flight time Julissa already has, rather than the minimum number of additional hours of flight time Julissa needs.

Choice D is incorrect. This is the number of hours of flight time Julissa will have if she completes 100 more hours of flight time, rather than the minimum number of additional hours of flight time Julissa needs.

Question Difficulty: Easy

Question ID 11f40ccb

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear inequalities in one or two variables	<div><div></div><div></div><div></div></div>

ID: 11f40ccb

Monarch butterflies can fly only with a body temperature of at least **55.0 degrees Fahrenheit ($^{\circ}\text{F}$)**. If a monarch butterfly's body temperature is **51.3°F** , what is the minimum increase needed in its body temperature, in **$^{\circ}\text{F}$** , so that it can fly?

- A. **1.3**
- B. **3.7**
- C. **5.0**
- D. **6.3**

ID: 11f40ccb Answer

Correct Answer: B

Rationale

Choice B is correct. It's given that monarch butterflies can fly only with a body temperature of at least 55.0 degrees Fahrenheit $^{\circ}\text{F}$. Let x represent the minimum increase needed in the monarch butterfly's body temperature to fly. If the monarch butterfly's body temperature is 51.3°F , the inequality $51.3 + x \geq 55.0$ represents this situation. Subtracting 51.3 from both sides of this inequality yields $x \geq 3.7$. Therefore, if the monarch butterfly's body temperature is 51.3°F , the minimum increase needed in its body temperature, in $^{\circ}\text{F}$, so that it can fly is 3.7.

Choice A is incorrect. This is the minimum increase needed in body temperature if the monarch butterfly's body temperature is 53.7°F , not 51.3°F .

Choice C is incorrect. This is the minimum increase needed in body temperature if the monarch butterfly's body temperature is 50.0°F , not 51.3°F .

Choice D is incorrect. This is the minimum increase needed in body temperature if the monarch butterfly's body temperature is 48.7°F , not 51.3°F .

Question Difficulty: Easy

Question ID 19344ff4

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear inequalities in one or two variables	<div><div></div><div></div><div></div></div>

ID: 19344ff4

The total cost, in dollars, to rent a surfboard consists of a **\$25** service fee and a **\$10** per hour rental fee. A person rents a surfboard for t hours and intends to spend a maximum of **\$75** to rent the surfboard. Which inequality represents this situation?

- A. $10t \leq 75$
- B. $10 + 25t \leq 75$
- C. $25t \leq 75$
- D. $25 + 10t \leq 75$

ID: 19344ff4 Answer

Correct Answer: D

Rationale

Choice D is correct. The cost of the rental fee depends on the number of hours the surfboard is rented. Multiplying t hours by 10 dollars per hour yields a rental fee of $10t$ dollars. The total cost of the rental consists of the rental fee plus the 25 dollar service fee, which yields a total cost of $25 + 10t$ dollars. Since the person intends to spend a maximum of 75 dollars to rent the surfboard, the total cost must be at most 75 dollars. Therefore, the inequality $25 + 10t \leq 75$ represents this situation.

Choice A is incorrect. This represents a situation where the rental fee, not the total cost, is at most 75 dollars.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID ac88c4e5

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear inequalities in one or two variables	<div><div></div><div></div><div></div></div>

ID: ac88c4e5

A geologist needs to collect at least **67** samples of lava from a volcano. If the geologist has already collected **63** samples from the volcano, what is the minimum number of additional samples the geologist needs to collect?

- A. **130**
- B. **63**
- C. **4**
- D. **0**

ID: ac88c4e5 Answer

Correct Answer: C

Rationale

Choice C is correct. It's given that the geologist has already collected 63 samples from the volcano. Let x represent the number of additional samples the geologist needs to collect. After collecting x additional samples, the geologist will have collected a total of $63 + x$ samples. It's given that the geologist needs to collect at least 67 samples. Therefore, $63 + x \geq 67$. Subtracting 63 from each side of this inequality yields the inequality $x \geq 4$. Thus, the geologist needs to collect a minimum of 4 additional samples.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect. This is the number of samples the geologist has already collected, rather than the minimum number of additional samples the geologist needs to collect.

Choice D is incorrect. If the geologist collects 0 additional samples, the geologist will have collected a total of 63 samples, which is less than 67 samples.

Question Difficulty: Easy