

Question ID 1e2ce9ac

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

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	Easy

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	Easy

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	Easy

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