Exercise Set 4 (No Calculator)

1

What positive number is twice as far from 10 as it is from 1?

2

If the points $(2, a)$ and $(14, b)$ are 20 units apart, what is $|a - b|$?

3

What is the least integer n for which $0 < \dfrac{4}{n} < \dfrac{5}{9}$?

4

If $|x + 4| = |x - 5|$, what is the value of x?

5

What is the greatest integer value of n such that $-\dfrac{n}{21} > -\dfrac{1}{2}$?

6

What is the only integer b for which $\dfrac{1}{b} > \dfrac{3}{11}$ and $3b \geq 7.5$?

7

If $(b + 2)^2 = (b - 5)^2$, what is the value of b?

8

Which of the following statements is equivalent to the statement $-4 < 2x \leq 2$?

A) $x > -2$ and $x \leq 1$

B) $x < -2$ or $x \geq 1$

C) $x \geq -2$ and $x < 1$

D) $x \leq -2$ or $x > 1$

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The annual profit from the sales of an item is equal to the annual revenue minus the annual cost for that item. The revenue from that item is equal to the number of units sold times the price per unit. If n units of a portable heart monitor were sold in 2012 at a price of $65 each, and the annual cost to produce n units was $(20,000 + 10n)$, then which of the following statements indicates that the total profit for this heart monitor in 2012 was greater than $500,000?

A) $500,000 < 55n - 20,000$

B) $500,000 > 55n - 20,000$

C) $500,000 < 55n + 20,000n$

D) $500,000 < 75n - 20,000n$

10

Colin can read a maximum of 25 pages an hour. If he has been reading a 250 page book for h hours, where $h < 10$, and has p pages left to read, which of the following expresses the relationship between p and h?

A) $250 - p \leq \dfrac{25}{h}$

B) $250 \geq p + \dfrac{25}{h}$

C) $250 - p \leq 25h$

D) $250 + 25h \leq p$

11

On the real number line, a number, x, is more than 4 times as far from 10 as it is from 40. Which of the following statements describes all possible values of x?

A) $x < 34$ or $x > 50$

B) $x > 40$

C) $34 < x < 50$

D) $32.5 < x < 160$

Exercise Set 4 (Calculator)

12

If $a < 0$ and $|a - 5| = 7$, what is $|a|$?

13

If n is a positive integer and $16 > |6 - 3n| > 19$, what is the value of n?

14

What is the only integer n such that $20 - 2n > 5$ and $\dfrac{2n}{3} > 4$?

15

What is the smallest number that is as far from 9.25 as 3 is from -1.5?

16

If $|2x + 1| = 2|k - x|$, for all values of x, what is the value of $|k|$?

17

Which of the following is equivalent to the statement $|x - 2| < 1$?

A) $x < 3$

B) $x < -1$

C) $1 < x < 3$

D) $-1 < x < 3$

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If the average (arithmetic mean) of a and b is greater than the average (arithmetic mean) of c and $2b$, which of the following must be true?

A) $b > 0$

B) $a > b$

C) $a > b + c$

D) $a + c > b$

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Of the statements below, which is equivalent to the statement "The distance from x to 1 is greater than the distance from x to 3?
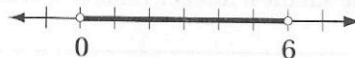
A) $1 < x < 3$

B) $x > 2$

C) $x < 2$

D) $x - 1 > 3$

20

Which of the following is equivalent to the statement $4x^2 \geq 9$?

A) $2x > 3$

B) $x \geq 1.5$ or $x \leq -1.5$

C) $|x| > 2$

D) $-1.5 \leq x \leq 1.5$

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The graph above indicates the complete solution set to which of the following statements?

A) $|x - 3| > 3$

B) $|x| < 6$

C) $|x - 6| < 6$

D) $|x - 3| < 3$

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Which of the following is true for all real values of x?

A) $|x| > 0$

B) $x < 2$ or $x > 1$

C) $x > -2$ or $x < -3$

D) $x^2 - 1 > 0$