# CHAPTER 2-4

## ABSOLUTE VALUE EQUATIONS

1. 010822b, A2.A.1
Solve for all values of $x$: $|2x-5|=3$

2. 080616b
What is the solution set of the equation $|x^2-2x|=3x-6$?

[A] $\{\pm 3\}$ [B] $\{2,\pm 3\}$

[C] $\{2,3\}$ [D] $\{2\}$

## ABSOLUTE VALUE INEQUALITIES

3. 060107b
Which equation states that the temperature, $t$, in a room is less than 3° from 68°?

[A] $|3 + t| < 68$ [B] $|68 - t| < 3$

[C] $|68 + t| < 3$ [D] $|3 - t| < 68$

4. 080102b, P.I. A2.A.1
The solution set of $|3x+2|<1$ contains

[A] only negative real numbers

[B] no real numbers

[C] only positive real numbers

[D] both positive and negative real numbers

5. 060318b, P.I. A2.A.1
What is the solution set of the inequality $|3-2x|\geq 4$?

[A] $\{x|x\leq \frac{7}{2} \text{ or } x\geq \frac{1}{2}\}$

[B] $\{x|x\leq -\frac{1}{2} \text{ or } x\geq \frac{7}{2}\}$

[C] $\{x|\frac{7}{2}\leq x\leq -\frac{1}{2}\}$ [D] $\{x|-\frac{1}{2}\leq x\leq \frac{7}{2}\}$

6. 080203b, P.I. A2.A.1
What is the solution of the inequality $|x+3|\leq 5$?

[A] $-8\leq x\leq 2$ [B] $x\leq -8$ *or* $x\geq 2$

[C] $-2\leq x\leq 8$ [D] $x\leq -2$ *or* $x\geq 8$

7. 080509b, P.I. A2.A.1
The solution of $|2x-3|<5$ is

[A] $x$ < -1 or $x$ > 4 [B] $x$ > -1

[C] $x$ < 4 [D] -1 < $x$ < 4

8. 010610b, P.I. A2.A.1
What is the solution of the inequality $|y+8|>3$?

[A] $y$ > -5 [B] -5 < $y$ < 11

[C] -11 < $y$ < -5 [D] $y$ > -5 or y < -11

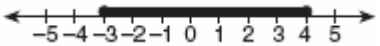
9. 010710b, P.I. A2.A.1
What is the solution set of the inequality $|2x-1|<9$?

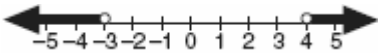
[A] $\{x|x<-4\}$ [B] $\{x|x<5\}$

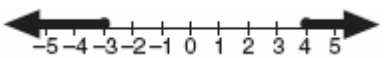
[C] $\{x|x<-4 \text{ or } x>5\}$

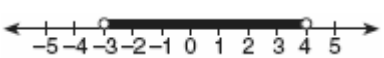
[D] $\{x|-4<x<5\}$

10. 080303b, P.I. A2.A.1
Which graph represents the solution set of $|2x-1|<7$?

[A] 


[B] 


[C] 


[D] 

11. 060505b, P.I. A2.A.1
Which graph represents the solution set for the expression $|2x+3|>7$?

[A] 


[B] 


[C] 

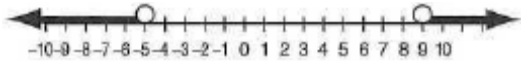

[D] 


12. 060707b, P.I. A2.A.1
Which inequality is represented by the accompanying graph?


[A] $|x+3|\geq 2$ [B] $|x+2|>5$

[C] $|x-1|\leq 5$ [D] $|x-5|\geq 2$

13. 060617b, P.I. A2.A.1
The solution set of which inequality is represented by the accompanying graph?




[A] $|x-2|>7$ [B] $|x-2|<7$

[C] $|2-x|<-7$ [D] $|2-x|>-7$

14. 010326b, P.I. A2.A.1
The inequality $|1.5C-24|\leq 30$ represents the range of monthly average temperatures, *C*, in degrees Celsius, for Toledo, Ohio. Solve for *C*.

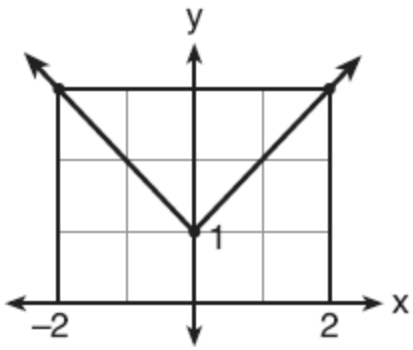
15. 010531b, P.I. A2.A.1
The heights, *h*, of the students in the chorus at Central Middle School satisfy the inequality $\left|\frac{h-57.5}{2}\right|\leq 3.25$, when *h* is measured *in inches*. Determine the interval in which these heights lie and express your answer to the *nearest tenth of a foot*. [Only an algebraic solution can receive full credit.]

16. 080427b, P.I. A2.A.1
A depth finder shows that the water in a certain place is 620 feet deep. The difference between *d*, the actual depth of the water, and the reading is $|d-620|$ and must be less than or equal to $0.05d$. Find the minimum and maximum values of *d*, to the *nearest tenth of a foot*.

# CHAPTER 2-5

## ABSOLUTE VALUE

17. 080707b, P.I. A.G.4
Which equation represents the function shown in the accompanying graph?

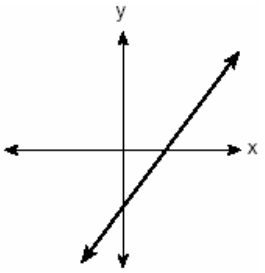



[A] $f(x)=|x|+1$ [B] $f(x)=|x-1|$

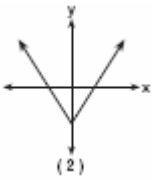
[C] $f(x)=|x+1|$ [D] $f(x)=|x|-1$

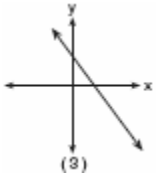
18. 010414b, P.I. A.G.4

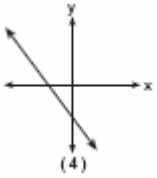
The graph below represents $f(x)$.

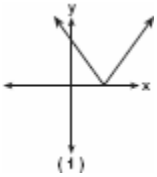



Which graph best represents $|f(x)|$?

[A] 

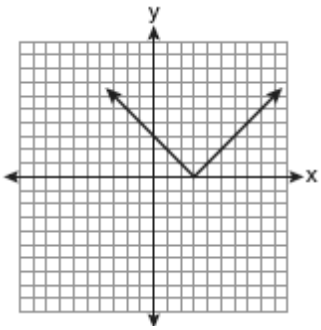

[B] 


[C] 


[D] 

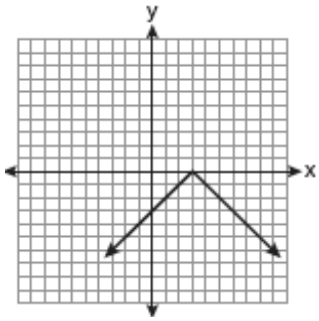

19. fall0722ia, P.I. A.G.4

The diagram below shows the graph of $y = |x - 3|$.

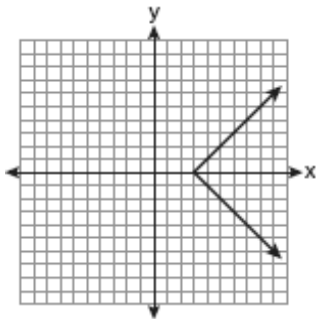



Which diagram shows the graph of $y = -|x - 3|$?

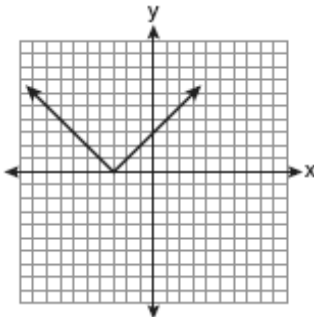
[A]



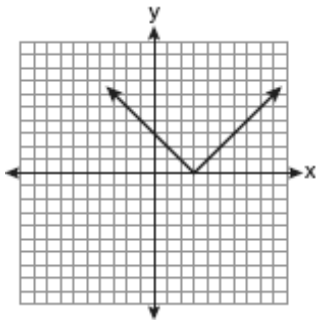

[B]




[C]




[D]



[21 1 and 4, and appropriate work is shown.
[1] Appropriate work is shown, but one computational error is made.
or [1] Appropriate work is shown, but one conceptual error is made.
or [1] 1 and 4, but no work is shown.
[0] 1 or 4, but no work is shown.
or [01 A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an
[1] obviously incorrect procedure.

[2] C

[3] B

[4] A

[5] B

[6] A

[7] D

[8] D

[9] D

[10] D

[11] A

[12] A

[13] A

[2] $-4 \le C \le 36,$ and appropriate work is shown.
[1] Appropriate work is shown, but one computational error is made.
or [1] Appropriate work is shown, but only one extreme value is found.
or [1] $-4 \le C \le 36,$ but no work is shown.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously
[14] incorrect procedure.

[4] 4.3-5.3, and appropriate work is shown.
[3] Appropriate work is shown, but one computational or rounding error is made.
or [3] Appropriate work is shown, but the answer is not stated as an interval.
or [3] Appropriate work is shown, but the answer is expressed in inches.
[2] Appropriate work is shown, but two or more computational or rounding errors are made.
or [2] Appropriate work is shown, but one conceptual error is made.
or [2] An appropriate inequality, such as $-3.25 \le \left|\frac{h-57.5}{2}\right| \le 3.25,$ is written, but no further correct work is shown.
[1] Appropriate work is shown, but one conceptual error and one computational or rounding error are made.
or [1] Only half of the inequality is solved, but an appropriate answer is found and expressed to the nearest tenth of a foot.
or [1] 4.3-5.3, but no work is shown.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously
[15] incorrect procedure.

[4] 590.5 and 652.6, and appropriate work is shown, such as $|d-620| \le 0.05d$.
[3] Appropriate work is shown, but one computational or rounding error is made.
[2] Appropriate work is shown, but two or more computational or rounding errors are made.
or [2] Appropriate work is shown, but one conceptual error is made.
or [2] 590.5 or 652.6, and appropriate work is shown.
[1] 590.5 and 652.6, but no work is shown.
[0] 590.5 or 652.6, but no work is shown.
or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an
[16] obviously incorrect procedure.

[17] A

[18] D

[19] A