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Inequalities – Exam Review #4

Solve each inequality, showing all work. Then, match each solution to its corresponding graph.

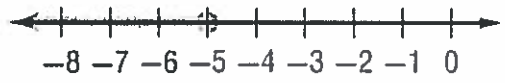
C 1. $x + 11 > 16$
$-11 \quad -11$
$x > 5$

E 2. $x - 6 < 1$
$+6 \quad +6$
$x < 7$

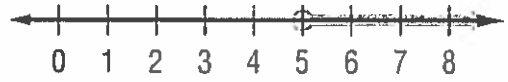
A 3. $x + 7 \leq -3$
$-7 \quad -7$
$x \leq -5$

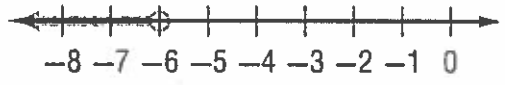
B 4. $x + 3 \geq 1$
$-3 \quad -3$
$x \geq -2$

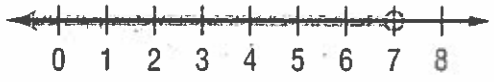
D 5. $x - 1 < -7$
$+1 \quad +1$
$x < -6$

a.


b.


c.


d.


e.


Solve each inequality for the variable. Show all work.

6. $20b \geq -120$
$\frac{20b}{20} \geq \frac{-120}{20}$
$b \geq -6$

7. $-8r < 16$
$\frac{-8r}{-8} > \frac{16}{-8}$
$r > -2$

8. $\frac{a}{9} \geq -15$ · 9
$a \geq -135$

9. $-\frac{p}{7} > 9$ · −7
$p < -63$

10. Which of the following is the solution to the given inequality? $-2b + 4 > -6$

a. $b > 1$

b. $b < -1$

c. $b < 5$

d. $b > 5$

$-2b + 4 > -6$
$-4 \quad -4$
$\frac{-2b}{-2} > \frac{-10}{-2}$
$b < 5$

11. Which of the following is the solution to the given inequality? $2(q - 3) + 6 \leq -10$

a. $q \leq -5$

b. $q \leq -2$

c. $q \leq -6.5$

d. $q \leq -8$

$2(q - 3) + 6 \leq -10$
$2q - 6 + 6 \leq -10$
$\frac{2q}{2} \leq \frac{-10}{2}$
$q \leq -5$

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12. MULTIPLE CHOICE Which of the following compound inequalities accurately describes the given number line?

a. $x < -3$ or $x \geq 3$

b. $x < 3$ and $x \leq 3$

c. $-3 < x \leq 3$

d. both a and c

e. both b and c

f. all of the above

doesn't work b/c the sign is the wrong way

13. Graph the following compound inequality. $y < -1$ **or** $y \geq 2$

Solve each inequality including absolute value, then plot your solutions on the given number line.

14. $|c - 3| < 1$

flip the sign for the (-) case!

$c - 3 < 1$ $\quad$ $c - 3 > -1$

$+3 \quad +3$ $\quad$ $+3 \quad +3$

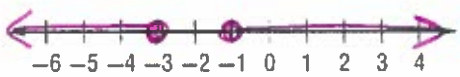
$c < 4$ $\quad$ $c > 2$

15. $|n + 2| \geq 1$

$n + 2 \geq 1$ $\quad$ $n + 2 \leq -1$

$-2 \quad -2$ $\quad$ $-2 \quad -2$

$n \geq -1$ $\quad$ $n \leq -3$



Match each two-variable inequality with its corresponding graph. Then, give at least one reason for how you know.

B **16.** $y < 2x + 2$

Because...

positive 2 slope, < dotted

D **17.** $y \leq -3x$

Because...

crosses through origin, $m = -3$, solid line

A **18.** $y \geq \frac{1}{2}x + 2$

Because...

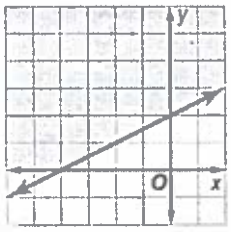
$m = 1/2$, $b = 2$, solid line

C **19.** $y > -x + 1$

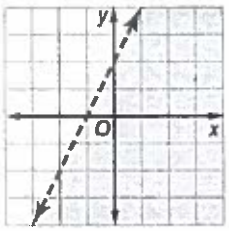
Because...

$b = 1$, $m = -1$, dotted line

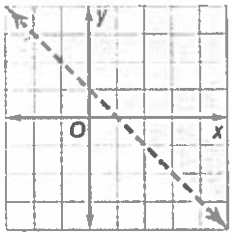
a.



b.



c.



d.