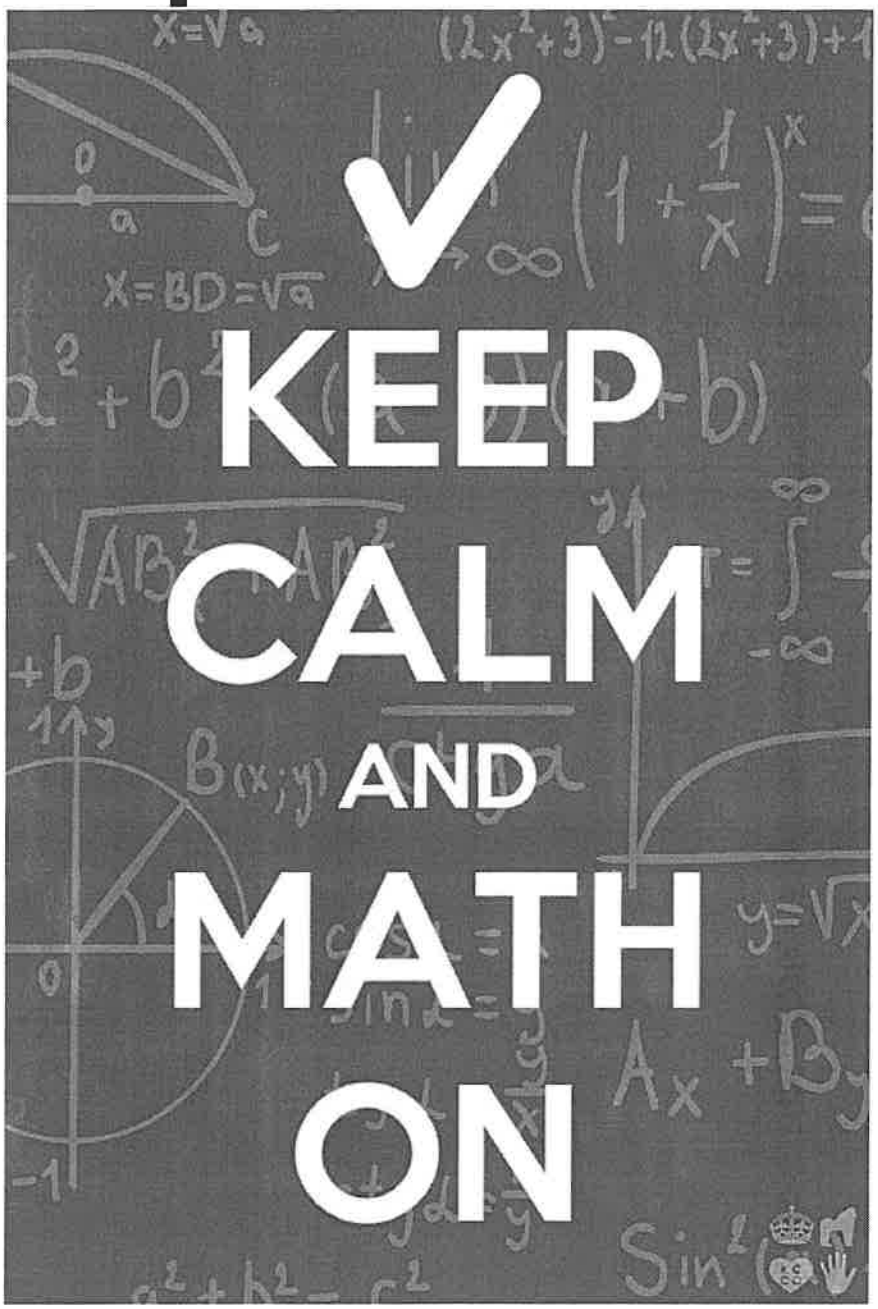
Name:_____ Class:_____ Date:_____

Chapter 1 Test



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Solve.

1. $5x + 18 = -17$

A. -5
B. -5
C. $\frac{1}{5}$
D. $-\frac{1}{5}$

2. $9 + 4(2x + 1) = 6(2 - 3x)$

A. $\frac{25}{26}$
B. $\frac{8}{5}$
C. $-\frac{1}{26}$
D. $\frac{1}{5}$

3. $\frac{3}{4}x + \frac{1}{8} = \frac{3}{8}x - \frac{1}{2}$

A. $-\frac{1}{3}$
B. $\frac{5}{9}$
C. $-\frac{1}{6}$
D. $\frac{5}{3}$

4. $|7x + 7| = 35$

A. $-4, -6$
B. $-4,6$
C. $4, -6$
D. $\emptyset$

Solve the quadratic equation by factoring.

5. $x^2 + 2x = 48$

A. $8, -6$
B. $-8,6$
C. $8,6$
D. *prime*

6. $2x^2 - 5x - 12 = 0$

A. $-\frac{3}{2}, -4$
B. $-\frac{3}{2}, 4$
C. $\frac{3}{2}, -4$
D. *prime*

Solve the quadratic equation by square roots.

7. $7x^2 - 84 = 0$

A. ± 14
B. $\pm 3\sqrt{2}$
C. $\pm 2\sqrt{6}$
D. $\pm 2\sqrt{3}$

8. $(x - 4)^2 + 40 = 0$

A. $4 \pm 2i\sqrt{10}$
B. $4 \pm 4i\sqrt{10}$
C. $4 \pm 4i\sqrt{5}$
D. $4 \pm 5i\sqrt{8}$

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Solve the quadratic equation by using the quadratic formula.

9. $5x^2 - 14 = -3x$

A. $\frac{3\pm\sqrt{271}}{5}$
B. $\frac{3\pm\sqrt{17}}{5}$
C. $-2, \frac{7}{5}$
D. $\frac{3}{5}, -\frac{8}{5}$

10. $7x^2 - 6x + 5 = 0$

A. $\frac{3\pm 2i\sqrt{26}}{7}$
B. $\frac{6\pm 26\sqrt{2}}{14}$
C. $\frac{3\pm i\sqrt{26}}{7}$
D. $\frac{6\pm\sqrt{176}}{14}$

Solve the equation.

11. $3x^3 - 75x - x^2 + 25 = 0$

A. $\pm 5, -\frac{1}{3}$
B. $\pm 5, \frac{1}{3}$
C. $\pm 5i, \frac{1}{3}$
D. $\pm 5i, -\frac{1}{3}$

12. $x^3 - 49x = 0$

A. $\pm 7, 0$
B. $\pm 7i$
C. ± 7
D. 0

13. $x^4 - 16 = 0$

A. $\pm 2, \pm\sqrt{-2}$
B. $\pm 2, \pm 2i$
C. ± 2
D. $\pm 2, \pm 4i$

14. $3x^{\frac{2}{3}} - 10x^{\frac{1}{3}} = 8$

A. $64, -\frac{2}{3}$
B. $64, -\frac{8}{27}$
C. $12, -\frac{2}{3}$
D. $12, -\frac{8}{27}$

15. $\sqrt{x+3} = \sqrt{6-x}$

A. $\frac{\sqrt{3}}{2}$
B. $\frac{3}{2}$
C. $\pm\sqrt{3}$
D. $\emptyset$

16. $\frac{2}{x+4} + \frac{2}{3} = \frac{3}{x+4}$

A. $-\frac{11}{2}$
B. $-\frac{17}{2}$
C. $-\frac{23}{2}$
D. $-\frac{5}{2}$

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Solve each inequality. Write your answer in interval notation.

17. $3x + 9 \geq 21$ *or* $4x + 2 < -18$

A. $(-\infty, 5) \cup [4, \infty)$
B. $(-\infty, -5) \cup [4, \infty)$
C. $(-\infty, -5) \cup [-4, \infty)$
D. $(-\infty, 5) \cup [-4, \infty)$

18. $5x - 11 < 19$ *and* $-2x - 3 \leq 13$

A. $[-8,6)$
B. $[8,-6)$
C. $(-\infty,-8) \cap [6,\infty)$
D. $(-\infty,-8) \cap [9,\infty)$

19. $|6x - 5| > 19$

A. $\left(-\infty, -\frac{7}{3}\right) \cup (4, \infty)$
B. $\left(-\infty, \frac{7}{3}\right) \cup (-4, \infty)$
C. $\left(-\infty, -\frac{7}{3}\right) \cup (-4, \infty)$
D. $\left(-\infty, \frac{7}{3}\right) \cup (4, \infty)$

20. $|5x + 15| \leq 25$

A. $[8,2]$
B. $[-8,-2]$
C. $[-8,2]$
D. $[8,-2]$

Use the critical value method to solve each inequality. Write your answer in interval notation.

21. $x^2 - 12x + 32 < 0$

A. [4,8]
B. (-4,-8)
C. $[-4,-8]$
D. (4,8)

22. $3x^3 - 2x^2 - 27x + 18 \geq 0$

A. $[-3,3] \cup [-\frac{2}{3}, \infty)$
B. $[-3, -\frac{2}{3}] \cup [3, \infty)$
C. $[-3,3] \cup [\frac{2}{3}, \infty)$
D. $[-3, \frac{2}{3}] \cup [3, \infty)$

23. $\frac{x+4}{x-2} \geq 0$

A. $(-\infty, 4] \cap [-2, \infty)$
B. $(-\infty, -4] \cap [2, \infty)$
C. $(-\infty, -4] \cup [-2, \infty)$
D. $(-\infty, 4] \cup [2, \infty)$

24. $\frac{4x-2}{x+3} < 3$

A. (3,-11)
B. (-7,-3)
C. (-3,11)
D. (7,-3)