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## Algebra II Chapter 1 Test Review

Please show all work and answers on separate paper. The test will consist of 2 parts, calculator and non calculator. . Test reviews are due on test day - NO LATE REVIEWS ACCEPTED.

## Part I (\#1 - 44) - NON-CALCULATOR!

To which sets of numbers does the number belong?

1. $\sqrt{31}$
2. -17
3. $-\begin{gathered}2 \\ 15\end{gathered}$
4. $-1 . \overline{1} 8$
5. $\pi$

Graph the number on a number line.
6. $\frac{10}{7}$
7. $-\frac{2}{5}$

Insert <, >, or = to make the sentence true.
8. $-\frac{5}{8} \square-\frac{3}{4}$
9. $\frac{1}{5} \square \frac{3}{7}$
10. $|-19| \square-|16|$
11. $|11-16| \square|-14+7|$

Find the opposite and the reciprocal of the number.
12. 3
13. $4-\pi$

Name the property of real numbers illustrated by the equation.
14. $5(x+4)=5 x+20$
15. $3 \cdot(\sqrt{6} \cdot 12)=(3 \cdot \sqrt{6}) \cdot 12$
16. $x \cdot 6=6 \cdot x$
17. $-8+8=0$
18. $-2.2+0=-2.2$

Evaluate the expression for the given value of the variable(s).
19. $5 a+5 b ; a=-6, b=-5$
20. $|-b+5|+\left|4-b^{2}\right|-2 b^{3} ; b=-3$
21. $2 x^{2}-4 x-1 ; x=-4$
22. $-2 x^{3}+3 x^{2}-3 x+5 ; x=2$ 23. $-2 x^{3}-x^{2}-5 x+2 ; x=-3$

Simplify by combining like terms.
24. $5 c-7 d-8 c+6 d$
25. $-2(-4 y-4)-3 y$

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Solve the equation.
26. $7(x-0.4)-0.5(4 x-3)=4$
27. $|3 x+5|=1$
28. $4|x+2|-3=9$

Solve the equation or formula for the indicated variable.
29. $S=5 r^{3} t$, for $t \quad 30.2 B=\frac{5 M}{W}$, for $M$

Solve for $x$. State any restrictions on the variables.
31. $a x+b x-2=-10$
32. $a(b x+2)=c x-12$

Solve the inequality. Graph the solution set.
33. $-2 k+3 \geq 11$
34. $4(4 b-1)<-16+16 b$
35. $45+15 b \geq 5(3 b+5)$

Solve the compound inequality. Graph the solution set.
36. $9 x+11 \geq-25$ and $8 x-10 \leq 38$
37. $7 x-8<-36$ or $6 x+7>19$
38. $-13 \leq 5 x-3<12$

Solve the inequality. Graph the solution.
39. $|4 x+10| \geq 10$
40. $|2 x+10|<26$
41. $|6 x+6|<12$
42. Sophia and Clarisse tossed a coin 60 times and got heads 34 times. What is the experimental probability of tossing heads using their results?
43. A spinner is numbered from 1 through 10 with each number equally likely to occur. What is the probability of obtaining a number less than 2 or greater than 7 in a single spin?
44. A bag contains 5 red marbles, 7 white marbles, and 5 blue marbles. Find $P$ (red or blue).

## Part II (\#45-49) - Calculator Allowed

Solve the equation. Check for extraneous solutions.
45. $3|5-2 x|=3 x+4$
46. $|x+5|=5+3 x$
47. A rectangle is 5 times as long as it is wide. The perimeter is 40 cm . Find the dimensions of the rectangle. Round to the nearest tenth if necessary.
48. The sides of a triangle are in the ratio $2: 3: 4$. What is the length of each side if the perimeter of the triangle is 81 cm ?
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## Algebra II Chapter 1 Test Review Solutions

1. irrational numbers, real numbers
2. integers, rational numbers, real numbers
3. rational numbers, real numbers
4. rational numbers, real numbers
5. irrational numbers, real numbers
6. 


7.

8. >
9. <
10. >
11. <
12. $-3, \frac{1}{3}$
13. $\pi-4, \frac{1}{4-\pi}$
14. Distributive Property
15. Associative Property of Multiplication
16. Commutative Property of Multiplication
17. Inverse Property of Addition
18. Identity Property of Addition
19. -55
20. 67
21. 47
22. -5
23. 62
24. $-3 c-d$
25. $5 y+8$
26. $\frac{53}{50}$ or 1.06
27. $x=-1 \frac{1}{3}$ or $x=-2$
28. $x=1$ or $x=-5$
29. $t=\frac{S}{5 r^{3}}$
30. $M=\frac{2 B W}{5}$
31. $x=\frac{-8}{a+b} ; a \neq-b$
32. $x=\frac{-12-2 a}{a b-c} ; a b \neq c$
33. $k \leq-4$

34. no solutions

35. all real numbers

36. $x \geq-4$ and $x \leq 6$

37. $x<-4$ or $x>2$

38. $-2 \leq x<3$

39. $x \leq-5$ or $x \geq 0$

40. $-18<x<8$

41. $-3<x<1$

42. 17

30
43. $\begin{array}{r}2 \\ 5\end{array}$
$44 \quad 10$
45. $x=\frac{11}{9}$ or $x=\frac{19}{3}$
46. $x=0$
47. 3.3 cm by 16.7 cm
48. $18 \mathrm{~cm}, 27 \mathrm{~cm}$, and 36 cm

