

CP Algebra 2
Unit 1 Review

Name: _____

Classify Numbers

- 1.) Classify - 4
- 2.) Classify 12
- 3.) Classify $\frac{13}{7}$
- 4.) Classify $\sqrt{3} + \sqrt{6}$
- 5.) Classify $\frac{\pi}{2} - 4$
- 6.) Classify 0
- 7.) Classify 1.12112111211112....

Convert Decimal to Simplified Fraction

- 1.) 0.24
- 2.) 0.533333333333...
- 3.) 0.515151515151...
- 4.) 0.9814814814814...
- 5.) 0.517878787878....
- 6.) 2.782525252525....
- 7.) -3.456145145145145145...

Order of Operations
Simplify completely!

- 1.) $10 - 3 \div 5 + 4 \cdot 2 + 6 \div 3 \cdot 4$
- 2.) $10 + 2\{44 - [3(2 + 7) - 2] + 6\}$
- 3.) $6 - 24(11 - 5) \div 6^2 - 5 \cdot 2$
- 4.) $8^2 + 7^2 - 6^2 + 5^2 - 4^2 + 3^2 - 2^2$
- 5.) $\left[\frac{(2 - 8)^2 \div 2 \cdot 4 - 1}{27 \div 9 - 5 \cdot 2} \right]^2$
- 6.) $\left[5 - \left(\frac{3}{2}\right)^2 + \left(\frac{1}{4}\right)^2 \right]^{-2} + 1$
- 7.) $\left[\frac{(3 \times 7 - 5^2)^2 + 10 - 24 \div 8 \times 2 + 2}{28 - 7 \times 3 - 5 + 9} \right]^{-1} - \left[\frac{18 - 7 + 48 \div 6 + 2 - 3^2}{17 - 5 \times 3 + 2} \right]^{1/2}$

Evaluating Expressions

$a = 3, b = 1/2, c = -5, d = 1/3$

- 1.) $a^2(b^2 + c^2)$
- 2.) $\frac{ac}{b} + \frac{c}{a}$
- 3.) $abc - ac - bc + bc$
- 4.) $(abcd)^2 - a^2 - b^2 - c^2 - d^2$
- 5.) $(c - a)^d$
- 6.) $(a - c)^b$

Solving Equations with Fractions

1.) $-\frac{1}{3}x + \frac{5}{6} = \frac{1}{2}x + \frac{4}{3}$

2.) $3\left(\frac{1}{2}x - \frac{1}{5}\right) = 5x - \frac{3}{4}x$

3.) $\frac{1}{2}x - \frac{1}{3} = \frac{1}{5} - \frac{1}{4}x$

4.) $\frac{5-x}{7} - 2x = \frac{3}{2}x + 1$

5.) $\frac{5}{2}\left(\frac{2}{3}x - \frac{4}{5}\right) + 2x = \frac{7x}{2} - \frac{1}{6}$

6.) $\left(\frac{5x}{2} - \frac{3}{4}\right) - \left(\frac{x}{3} + 4\right) = 3x - \frac{8}{3} + \frac{2x}{6}$

7.) $\left(\frac{3}{2}\right)^2\left(\frac{6}{5}x - \frac{1}{4}\right) - \frac{11}{3} = \frac{25}{2} - 4x$

Solving Equations with Square Roots

1.) $\sqrt{6x} = 32$

2.) $\frac{\sqrt{24}}{3}x - \frac{7}{6} = \frac{9}{2} + \sqrt{54}x$

3.) $2\sqrt{3}\left(\frac{3}{2}x - \sqrt{3}\right) = \sqrt{12}x - \frac{1}{5}$

4.) $\frac{\sqrt{243}}{12}x - \frac{5}{6} = \frac{7}{4}\left(5\sqrt{75}x - \frac{1}{2}\right)$

5.) $\sqrt{x-2} + \sqrt{x-7} = 3$

6.) $3\sqrt{x-1} + \sqrt{x+1} = 6 - 2\sqrt{x+1}$

7.) $\sqrt{3x-1} + \sqrt{3x+1} = 4$

Fractions as Exponents

1.) $100^{1/2}$

2.) $125^{1/3}$

3.) $\left(\frac{1}{2}\right)(144)^{1/2}$

4.) $\left(\frac{16}{25}\right)^{1/2}$

5.) $16^{5/4}$

6.) $(49^{1/2} - 8^{1/3})^{1/2}$

7.) $\left[\left(\frac{1}{2}\right)^2 + \left(\frac{1}{3}\right)^2\right]^{1/2}$

Solving Equations with Absolute Values

1.) $3 - 2|5x - 1| = 3x - 8$

2.) $|8x + 7| = |5 - 6x|$

3.) $5 - 2|3x - 4| = 3x + 1$

4.) $\left|5x - \frac{7}{8}\right| = |x + 1|$

5.) $5 + \sqrt{24}\left|\frac{x}{3} - \frac{\sqrt{150}}{2}\right| = 8$

6.) $\frac{\sqrt{8}}{3} - \left|\frac{x}{2} + \sqrt{18}\right| = \sqrt{32}$

7.) $-8 + \left|\frac{\sqrt{98}x}{6} - \frac{1}{3}\right| = \frac{31}{2}$

Solving Inequalities**(Answer as graph and interval notation)**

1.) $3x - 7 < 8x - 12$ or $\sqrt{8}x - 8 \leq \sqrt{50}x - 3$

2.) $-2 \leq \sqrt{32}x - \frac{2}{5} \leq 14$

3.) $5 + 3 \left| \frac{1}{5} - \frac{3x}{4} \right| \geq 11$

4.) $5x > 2\sqrt{18} - \frac{3}{5}x$ and $\frac{3}{4}x - \frac{1}{5} \leq 6 - \frac{1}{3}x$

5.) $\left| \frac{3}{4} - x \right| - 7 < 8$

6.) $15 - \frac{2}{5}|\sqrt{48}x - 3| > -5$

7.) $18 - \sqrt{24} \left| \sqrt{54} - \frac{3}{5}x \right| \leq 10$

Literal Equations

1.) $A = bh$ for b

2.) $SA = 4\pi r^2$ for r

3.) $a(2x - b) = c(dx - 1)$ for x

4.) $A = \frac{h}{2}(b_1 + b_2)$ for b_2

5.) $m = \frac{y_2 - y_1}{x_2 - x_1}$ for x_1

6.) $ax - 12b = 8a - 5c$ for a

7.) $4x - 5y + ax = 12 - bx + 10y$ for x

Word Problems

- 1.) The sum of five consecutive odd integers is 375. Find the five integers.
- 2.) Jim walked for 30 minutes then ran three times as fast for five minutes. If he traveled a total of 3 miles, how fast does he walk?
- 3.) You drove 320 miles using 14 gallons of gasoline that cost \$2.49 per gallon. If you get 25 miles per gallon on the highway and 20 in the city, how much did you spend for fuel for highway driving?
- 4.) A motorboat's speed in calm water is 10 mph. The rate of the river current is 4 mph. It takes 3 hours for the boat to make the trip upstream from the dock to an island and back. How far is the island from the dock?
- 5.) Frank can clean the cafeteria in 90 minutes. Sally can clean the cafeteria in 115 minutes. How long will it take Frank and Sally to clean the cafeteria if they are working together?
- 6.) A tank can be filled by pipe A in 5 hours and by pipe B in 8 hours. When the tank is full, pipe C can drain it in 10 hours. If the tank is initially empty and all three pipes are opened simultaneously, how long will it take to fill the tank? Round to the nearest minute.
- 7.) Jim can cut the grass in 3 hours by himself. Working together, Jim and Joe cut the grass in 2 hours. How long does it take Joe to cut the grass by himself? Round to the nearest minute.