

Summer Math Review 2015
For Section 8 Algebra 1+2

- *You should not use a calculator for this work.*
- *Work on a separate sheet of paper.*
- *Show all work.*

1. Order from least to greatest:

$$-\sqrt{15}, -3.3, -3\frac{1}{2}, -\frac{10}{3}$$

2. Name a rational number between 6 and 7.

3. Name an irrational number between 6 and 7.

4. Simplify:

- a. $6(4x - 3)$
- b. $-3(7y - 2)$
- c. $8 - 2^4 \div 4 + 3 \cdot 2$
- d. $4xy^2 + 3xy^2 - 2xy$
- e. $\sqrt{\frac{36}{49}}$
- f. $3.8 - (-1.7)$
- g. $-\frac{1}{2}(4c + 10d)$

5. Evaluate $(3x)^2 - (y^2 - x^3)$ when $x = -2$ and $y = -3$.

6. $5ab^2c^3$ and _____ are like terms.

7. Solve each equation:

- a. $8x - 7 - x = 5 + 4x - 2$
- b. $4y - (5 + 2y) = 6 - (2y - 5)$

8. If $2x + 5 = kx + 7$ has no solution, then $k = \underline{\hspace{2cm}}$.
9. Using x as a variable, write an equation that is also an identity.
10. Solve $a = \frac{b-c}{d}$ for c .
11. Al earns a base salary of \$575 a week plus \$50 for each widget he sells. How many widgets must he sell in a week to earn \$1000?
12. 210 is 30% of what number?
13. What percent of 48 is 2.4?
14. What is 12% of 9?
15. An object that used to sell for \$15 and is now being sold for \$12 is being offered at a _____% discount.
16. An object that was bought for \$12 and is being sold for \$15 is being sold at a _____% markup.
17. Solve each inequality, using set-builder notation to express your answers:
- $5 - 4r \leq 3 - r$
 - $4c + 8 - 2c \geq 3(5 - c)$
18. Graph your solutions to #17 on number lines.
19. Using x as a variable, write an inequality that has no solution.

20. Solve $|x + 2| \leq 5$.
21. Solve $|4y - 2| \geq 8$.
22. How many subsets has $\{10, 11, 12\}$?
23. If $\{(3, 5), (5, 7), (7, 9), (k, 11)\}$ is not a function, then k might equal ___.
24. A function containing $(1, 4)$, $(2, 7)$, and $(3, c)$ won't be linear unless $c =$ ___.
25. $f(x) = 7 - 2x$. If the domain of f is $\{3, 4, 5\}$, find the range of f .
26. If $f(x) = 3x^3 - 1$ and $f(a) = 23$, find a .
27. P varies directly with W . When $W = 8$, $P = 25$; when $W = 24$, $P =$ _____.
28. Find an equation of the line parallel to the graph of $y = 3x + 1$ and passing through $(7, 10)$.
29. The graphs of $y = 2x - 5$ and $y = 2kx + 3$ are perpendicular. Find k .
30. Find the slope of the line through $(-2, -8)$ and $(2, -10)$.
31. Find an equation of the line through $(3, 4)$ and $(5, -8)$.
32. Find the x -intercept and the y -intercept of the graph of $5x - 6y = 60$.
33. The vertical line through $(73, 74)$ has equation _____.

34. Solving by graphing:

$$\begin{aligned}y &= 2x - 1 \\ 3x + y &= 9\end{aligned}$$

35. Solve by using substitution:

$$\begin{aligned}2x + y &= 7 \\ 3x + 2y &= 15\end{aligned}$$

36. Solve by using elimination:

$$\begin{aligned}3x - 4y &= 10 \\ 5x - 6y &= 17\end{aligned}$$

37. Graph the system:

$$\begin{aligned}y &\geq -\left(\frac{1}{2}\right)x + 3 \\ 2x + y &\leq 7\end{aligned}$$

38. Simplify:

- a. 5^{-2}
- b. $(x^4y^5)(-y^3x^{-8})$
- c. $(3x^5y^2)^3$
- d. $\left(2a^{\frac{2}{3}}\right)^6$
- e. $(5^0)(6^0)(7)$
- f. $27^{\frac{4}{3}}$