

Summer Math Review 2017

For Section 8 Honors

- 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. 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. $-\frac{1}{2}(4c + 10d)$

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

4. Solve each equation:

a. $8x - 7 - x = 5 + 4x - 2$

b. $4y - (5 + 2y) = 6 - (2y - 5)$

5. Solve $a = \frac{b-c}{d}$ for c .

6. 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 at least \$1000?
7. 210 is 30% of what number?
8. What percent of 48 is 2.4?
9. What is 12% of 9?
10. An object that used to sell for \$15 and is now being sold for \$12 is being offered at a ____% discount.
11. An object that was bought for \$12 and is being sold for \$15 is being sold at a ____% markup.
12. Solve each inequality, using set-builder notation to express your answers:
- a. $5 - 4r \leq 3 - r$
- b. $4c + 8 - 2c \geq 3(5 - c)$
13. If $\{(3, 5), (5, 7), (7, 9), (k, 11)\}$ is not a function, then k might equal ____.
14. A function containing $(1, 4)$, $(2, 7)$, and $(3, c)$ won't be linear unless $c =$ ____.
15. $f(x) = 7 - 2x$. If the domain of f is $\{3, 4, 5\}$, find the range of f .
16. If $f(x) = 3x^3 - 1$ and $f(a) = 23$, find a .
17. P varies directly with W . When $W = 8, P = 25$; when $W = 24, P =$ ____.

18. Find an equation of the line parallel to the graph of $y = 3x + 1$ and passing through $(7, 10)$.

19. The graphs of $y = 2x - 5$ and $y = 2kx + 3$ are perpendicular. Find k .

20. Find the slope of the line through $(-2, -8)$ and $(2, -10)$.

21. Find an equation of the line through $(3, 4)$ and $(5, -8)$.

22. Find the x -intercept and the y -intercept of the graph of $5x - 6y = 60$.

23. The vertical line through $(73, 74)$ has equation _____.

24. Solving by graphing:

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

25. Solve by using substitution:

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

26. Solve by using elimination:

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

27. 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. $27^{\frac{4}{3}}$