

Summer Math Review 2017
For Section 10 Accelerated

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

Section 1 – Equations

Solve each of the following equations:

1. $5x + 3 = -12$

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

3. $2(3x - 4) - 5(x + 2) = 4$

4. $\frac{x}{3} = \frac{8}{15}$

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

6. $\frac{5}{7} = \frac{10}{x+2}$

7. $\frac{1}{x} + \frac{1}{2x} + \frac{1}{3x} = 1$

8. $\sqrt{x+1} + 3 = 5$

9. $\frac{2}{x} = \frac{x}{18}$

10. $25 - x^2 = 0$

11. $12x^2 - 2x = 0$

12. $4x^2 - 5x = 6$

Section 2 – Radicals

Simplify each of the following:

1. $\sqrt{196}$

2. $\sqrt{72}$

3. $\sqrt{845}$

4. $\sqrt{12} \cdot \sqrt{75}$

5. $\sqrt{18} \cdot \sqrt{24}$

6. $\sqrt{5} + \sqrt{125}$

Section 3 – Word Algebra

1. It costs \$750 plus \$250 per hour to rent a construction crane. What is the maximum number of hours the crane can be used per day if the daily rental cost is not to exceed \$2250?
2. A 120-foot long piece of rope is cut into three parts. The first part is twice as long as the second part and the third part is three times as long as the second part. What is the length of the longest cut part?
3. The lengths of the sides of a triangle are 7 cm, y cm and $y + 3$ cm, and the perimeter is 24 cm. What is the value of y ?
4. There are b boys in a class of twelve students. This is 4 fewer than three times the number of girls. How many girls are there?

Section 4 – Coordinate Geometry

Find the slope of each of the following lines:

1. $y = 2x - 8$

2. $2x + 4y - 7 = 0$

3. $3 = \frac{x}{y}$

Find the slope of the line through each of the following pairs of points:

4. $(5, 1)$ and $(2, 7)$

5. $(5, 3)$ and $(-2, 3)$

6. $(-\frac{1}{2}, -2)$ and $(-\frac{3}{2}, 1)$

Section 5 – Systems of Equations

1. Is the point $(\frac{1}{2}, 1)$ on the line $y = 2x + 1$? Explain.

2. Solve the following system of equations: $y = 3 - 2x$ and $2x - y = 5$.

3. Find where the graphs of $2x + 7y = 12$ and $2x + 3y = 4$ intersect.

4. Where do the graphs of $2x - 5y = 0$ and $3x + 4y = 23$ meet?

5. Show that the system of equations $y = 3x - 5$ and $6x - 2y = 9$ has no solutions.

Section 6 – More Algebra Review

1. If $a = 0$ and $b \neq 0$, what is the value of $\frac{a}{b} + \frac{a-1}{b} + \frac{a+1}{b}$?
A 3 **B** 2 **C** 1 **D** $\frac{1}{2}$ **E** 0
2. If $a - b = 80$ and $\frac{3}{5} = \frac{b}{a}$, what is the value of a ?
A 240 **B** 200 **C** 120 **D** 80 **E** 5
3. If x onions cost a total of r cents, how many onions can be bought for d dollars?
A $\frac{100d}{xr}$ **B** $\frac{r}{100dx}$ **C** $\frac{100r}{dx}$ **D** $\frac{100dx}{r}$ **E** $\frac{dx}{100r}$
4. If the square of a number N ($N \neq 0$) equals g times that number, then what is N in terms of g ?
A $-g^2$ **B** $-g$ **C** g **D** $2g$ **E** g^2
5. If it takes ten men 4 hours to repair a barn, how long would it take 8 men to do the same job?
A 2 hours **B** 5 hours **C** 6 hours **D** 8 hours **E** 10 hours
6. In x years from now, Robert will be k years old. How old was Robert m years ago?
A $x - (k + m)$ **B** $k - x$ **C** $k - x - m$ **D** $x - (k - m)$ **E** $k + m - x$
7. The ratio $a:b$ is 2:5 and the ratio $d:b$ is 3:2. What is the ratio $a:d$?
A $\frac{6}{25}$ **B** $\frac{4}{15}$ **C** $\frac{3}{5}$ **D** $\frac{2}{3}$ **E** $\frac{3}{2}$
8. Dan buys a \$125 dollar chainsaw at a discount of 16%. What did he pay for the saw?
A \$41 **B** \$84 **C** \$105 **D** \$109 **E** \$116.60
9. Shira bought a washing machine for \$798, at a 24% discount off the original price. What was the original price?
A \$822 **B** \$927.91 **C** \$989.52 **D** \$999 **E** \$1050