

# Math (HS) (Last Packet)

Day	Date	Video/Assignment	Is it done?
Monday	5/18/2020	NO CLASS	
Tuesday	5/19/2020	graphing points	
Wednesday	5/20/2020	midpoint formula	
Thursday	5/21/2020	gcf with variables	
Friday	5/22/2020	lcm with variables	
Monday	5/25/2020	NO SCHOOL	
Tuesday	5/26/2020	sets	
Wednesday	5/27/2020	practice final - 1st part to 54	
Thursday	5/28/2020	practice final - 2nd part to 100	
Friday	5/29/2020	take final exam	
Monday	6/1/2020	NO CLASS	
Tuesday	6/2/2020	fractional powers	
Wednesday	6/3/2020	negative exponents	
Thursday	6/4/2020	negative exponents 2	
Friday	6/5/2020	nothing - there would have been no math this day	
How many total did you do:			

Zoom sessions available upon request for those who need help

Prerequisite skills required: none

A coordinate system has an x axis, which is horizontal, and a y axis which is vertical.

The point where they meet is called the origin.

The location of a point on this grid is given by its coordinates. The coordinates are a pair of numbers.

The first coordinate is called the x coordinate. It tells you to move right (if positive) or left (if negative).

The second coordinate is called the y coordinate. It tells you to move up (if positive) or down (if negative).

ex: A(2,3) would be a point located right 2 and up 3 (relative to the origin)

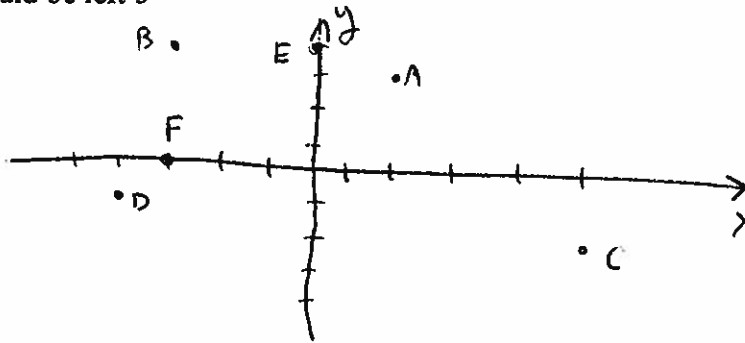
B(-3,4) would be left 3, up 4

C(5, -2) would be right 5, down 2

D(-4, -1) would be left 4, down 1

E(0, 4) would be just up 4 (the 0 does not make you move)

F(-3,0) would be left 3



Draw the points on the grid

A(1,3)

D(-4, -4)

G(3,2)

J(-5, -1)

M(5,2)

P(-3, -2)

B(-2,4)

E(0, 5)

H(-3, 1)

K(0, -2)

N(-2,1)

Q(0, 2)

C(3, -2)

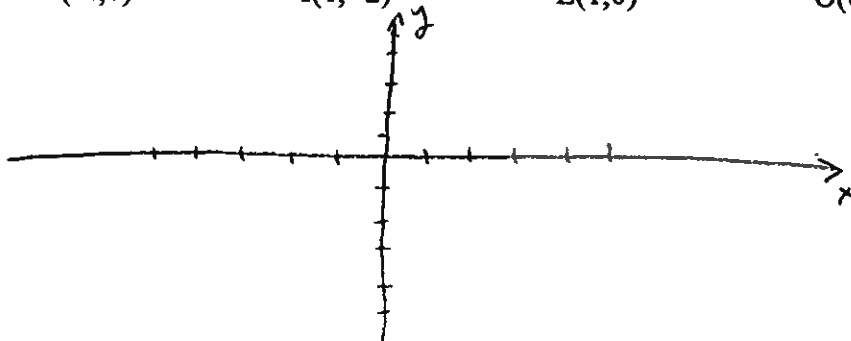
F(-4,0)

I(1, -2)

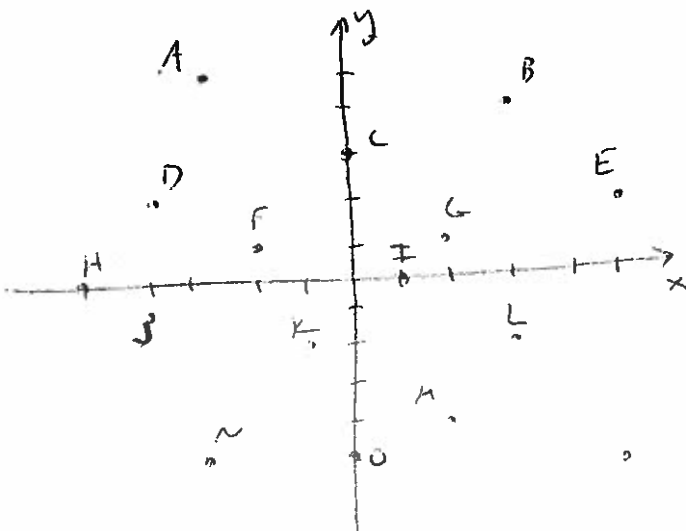
L(1,0)

O(0, 0)

R(4, -5)



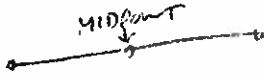
Identify the coordinates of each point (Your answers should look just like the problems above)



Name \_\_\_\_\_

Math ~~XXXXXXXXXX~~ Midpoint Formula

The midpoint formula tells you the coordinates of the point that is exactly halfway between two other points.



The formula is  $\text{midpoint} = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$

BASICALLY - DO THE AVERAGE  
ADD AND THEN DIVIDE  
BY 2

To find the midpoint of (3,4) and (5,9), first add the x-coordinates.  $3 + 5 = 8$ . Then add the y-coordinates.  $4 + 9 = 13$ . Divide them both by 2. The answer is (4, 6.5).

Using (4,5) and (2,10), the midpoint would be (3, 7.5)

Using (3,7) and (-5, 1), the midpoint would be (-1, 4)

Find the midpoint.

(3,7) and (5,7) \_\_\_\_\_

(5,7) and (6,6) \_\_\_\_\_

(-4,5) and (7,-5) \_\_\_\_\_

(-6,5) and (5,-9) \_\_\_\_\_

(5,-9) and (9,-7) \_\_\_\_\_

(8,-7) and (7,-8) \_\_\_\_\_

(-6,-8) and (-4,5) \_\_\_\_\_

(-5,-2) and (-5,6) \_\_\_\_\_

(7,-4) and (6,-9) \_\_\_\_\_

(7,-4) and (5,-4) \_\_\_\_\_

(-8,9) and (-8,-8) \_\_\_\_\_

(-5,8) and (-9,-5) \_\_\_\_\_

(9,-7) and (9,5) \_\_\_\_\_

(7,-5) and (2,7) \_\_\_\_\_

(0,6) and (-3,5) \_\_\_\_\_

(3,3) and (-4,0) \_\_\_\_\_

(-5,5) and (5,-3) \_\_\_\_\_

(-0,7) and (2,-8) \_\_\_\_\_

(8,8) and (9,4) \_\_\_\_\_

(5,4) and (1,1) \_\_\_\_\_

Prerequisite skills required: GCF (lesson 20)  
Variables (lesson 66)

The GCF was the greatest common factor--the largest number that goes into two others.

- ex: the GCF of 6 and 9 is 3 since 3 is the largest number that goes into them.  
the GCF of 36 and 12 is 12.  
the GCF of 3 and 4 is 1.

If there are variables with exponents, the GCF is the lowest power of any exponent.

- ex: the GCF of  $y^4$  and  $y^5$  is  $y^4$   
the GCF of  $3y^7$  and  $4y^4$  is  $1y^4$   
the GCF of  $16x^7y^8$  and  $28x^3y^5$  is  $4x^3y^5$   
the GCF of  $16x^7$  and  $28x^3y^5$  is  $4x^3$  (since one of them doesn't have  $y$ 's, neither can the answer)

Find the GCF

- |                              |       |                             |       |
|------------------------------|-------|-----------------------------|-------|
| 1. $y^5$ and $y^9$           | _____ | 16. $y^4$ and $y^8$         | _____ |
| 2. $y^6$ and $y^8$           | _____ | 17. $y^5$ and $y^6$         | _____ |
| 3. $y^7$ and $y^7$           | _____ | 18. $y^6$ and $y^2$         | _____ |
| 4. $y^8$ and $y^5$           | _____ | 19. $y^7$ and $y^5$         | _____ |
| 5. $y^9$ and $y^3$           | _____ | 20. $y^8$ and $y$           | _____ |
| 6. $2y^8$ and $8y^5$         | _____ | 21. $6y^9$ and $15y^7$      | _____ |
| 7. $30y^7$ and $70y^6$       | _____ | 22. $15y^8$ and $20y^4$     | _____ |
| 8. $45y^6$ and $65y^7$       | _____ | 23. $4y^7$ and $6y^8$       | _____ |
| 9. $25y^5$ and $50y^5$       | _____ | 24. $3y^6$ and $2y^7$       | _____ |
| 10. $16y^4$ and $30y^7$      | _____ | 25. $12y^5$ and $4y$        | _____ |
| 11. $7x^3y^8$ and $6xy^5$    | _____ | 26. $16x^4y^8$ and $50y^5$  | _____ |
| 12. $8x^2y^8$ and $43x^5y^5$ | _____ | 27. $60x^3y^8$ and $16x^5$  | _____ |
| 13. $39xy^8$ and $6x^8y^5$   | _____ | 28. $7x^2y^8$ and $7x^6y^7$ | _____ |
| 14. $9x^2y^8$ and $3y^5$     | _____ | 29. $18xy^8$ and $8x^2y^3$  | _____ |
| 15. $8x^3y^8$ and $6x^3y^5$  | _____ | 30. $9x^5y^8$ and $6xy$     | _____ |

Prerequisite skills required: LCM (lesson 30)  
Variables (lesson 66)

The LCM was the least common multiple--the smallest number that two others go into.  
ex: the LCM of 6 and 9 is 18 since 18 is the smallest number they go into.  
the LCM of 9 and 12 is 36.

If there are variables with exponents, the LCM is the highest power of any exponent.  
ex: the LCM of  $y^4$  and  $y^5$  is  $y^5$   
the LCM of  $3y^7$  and  $4y^4$  is  $12y^7$   
the LCM of  $6x^7y^8$  and  $8x^3y^5$  is  $24x^7y^8$

Find the LCM

- |                             |       |                             |       |
|-----------------------------|-------|-----------------------------|-------|
| 1. $y^5$ and $y^9$          | _____ | 16. $y^4$ and $y^8$         | _____ |
| 2. $y^6$ and $y^8$          | _____ | 17. $y^5$ and $y^6$         | _____ |
| 3. $y^7$ and $y^7$          | _____ | 18. $y^6$ and $y^2$         | _____ |
| 4. $y^8$ and $y^5$          | _____ | 19. $y^7$ and $y^5$         | _____ |
| 5. $y^9$ and $y^3$          | _____ | 20. $y^8$ and $y$           | _____ |
| 6. $2y^8$ and $8y^5$        | _____ | 21. $7y^9$ and $5y^7$       | _____ |
| 7. $3y^7$ and $7y^6$        | _____ | 22. $5y^8$ and $2y^4$       | _____ |
| 8. $4y^6$ and $6y^7$        | _____ | 23. $4y^7$ and $6y^8$       | _____ |
| 9. $5y^5$ and $5y^5$        | _____ | 24. $3y^6$ and $2y^7$       | _____ |
| 10. $6y^4$ and $3y^7$       | _____ | 25. $2y^5$ and $4y$         | _____ |
| 11. $7x^3y^8$ and $6xy^5$   | _____ | 26. $6x^4y^8$ and $5y^5$    | _____ |
| 12. $8x^2y^8$ and $3x^5y^5$ | _____ | 27. $6x^3y^8$ and $6x^5$    | _____ |
| 13. $9xy^8$ and $6x^8y^5$   | _____ | 28. $7x^2y^8$ and $7x^6y^7$ | _____ |
| 14. $9x^2y^8$ and $3y^5$    | _____ | 29. $8xy^8$ and $8x^2y^3$   | _____ |
| 15. $8x^3y^8$ and $6x^3y^5$ | _____ | 30. $9x^5y^8$ and $9xy$     | _____ |

Name \_\_\_\_\_

Math ~~\_\_\_\_\_~~ Sets

2 PAGES

Prerequisite skills required: none

A set is just a collection of items which are called elements

ex:  $\{1,2,3\}$  is a set with three elements 1, 2, and 3

A subset is a set that is contained in another set.

ex:  $\{1,2\}$  is a subset of  $\{1,2,3\}$  because all of the elements of the first set are contained in the second.  
 $\{1,2,3,4\}$  is not a subset of  $\{1,2,3\}$  because it has an element (4) not contained in  $\{1,2,3\}$

The intersection of two sets is the overlap, the items that are in both sets.

ex: the intersection of  $\{1,2,3\}$  and  $\{2,3,4,5\}$  is  $\{2,3\}$  because they share those elements.

The union of two sets is the joining together of any items in one or both sets.

ex: the union of  $\{1,2,3\}$  and  $\{2,3,4,5\}$  is  $\{1,2,3,4,5\}$  because we just join the elements together to make a larger set. Do not write 2 or 3 twice in the union even though they were in both different original sets.

How many elements are there in  $\{2,4,6\}$ ?

How many elements are there in  $\{2,4,6,8\}$ ?

How many elements are there in  $\{0\}$ ?

How many elements are there in  $\{ \}$ ?

is  $\{1,2,3,4\}$  a subset of  $\{1,2,3,4,5\}$ ?

is  $\{1,2,3\}$  a subset of  $\{1,2,3,4,5\}$ ?

is  $\{1,2,3,4\}$  a subset of  $\{1,2,3\}$ ?

is  $\{1,2,3\}$  a subset of  $\{1,2,3\}$ ?

is  $\{ \}$  a subset of  $\{1,2,3,4,5\}$ ?

is  $\{1\}$  a subset of  $\{1,2,3,4,5\}$ ?

is  $\{1,2,3\}$  a subset of  $\{1,2\}$ ?

What is the intersection of  $\{1,2,3,4\}$  and  $\{1,2,3,4,5\}$ ?

What is the intersection of  $\{1,2,3\}$  and  $\{1,2,3\}$ ?

What is the intersection of  $\{3,4,5,6,7\}$  and  $\{1,2,3,4,5\}$ ?

What is the intersection of  $\{1,2,6,7\}$  and  $\{2,3,4,5\}$ ?

What is the intersection of  $\{1,2,3\}$  and  $\{3,4,5\}$ ?

What is the intersection of  $\{1,2,3\}$  and  $\{4,5,6,7\}$ ?

What is the intersection of  $\{1,2,3,5\}$  and  $\{3,4,5\}$ ?

What is the intersection of  $\{1,2,3,4,6,7\}$  and  $\{2,4,5\}$ ?

What is the union of  $\{1,2,3,4\}$  and  $\{1,2,3,4,5\}$ ?

What is the union of  $\{1,2,3\}$  and  $\{3,4,5\}$ ?

What is the union of  $\{1,2,3\}$  and  $\{4,5,6\}$ ?

What is the union of  $\{2,4\}$  and  $\{1,3\}$ ?

What is the union of  $\{3,4\}$  and  $\{2,3,4\}$ ?

What is the union of  $\{1,4\}$  and  $\{1,2,4\}$ ?

What is the union of  $\{3,4\}$  and  $\{1,5\}$ ?

What is the union of  $\{1,2,4\}$  and  $\{1,4,5\}$ ?

Name \_\_\_\_\_

1.  $358 + 589$  \_\_\_\_\_

2.  $45\,745 + 45\,992$  \_\_\_\_\_

3.  $5534 - 3493$  \_\_\_\_\_

4.  $74\,534 - 45\,992$  \_\_\_\_\_

5.  $83 \times 599$  \_\_\_\_\_

6.  $9436 \times 34$  \_\_\_\_\_

7.  $8645 \div 9$  \_\_\_\_\_

8.  $44\,646 \div 858$  \_\_\_\_\_

Round 5076.8508 to the nearest

9. hundredth \_\_\_\_\_

10. thousandth \_\_\_\_\_

11. hundred \_\_\_\_\_

12. thousand \_\_\_\_\_

13. Which of 71, 75, and 77 is prime? \_\_\_\_\_

Find the average of

14. 9, 17, 27, and 35 \_\_\_\_\_

Write the factors of each number.

15. 32 \_\_\_\_\_

Find the greatest common factor for each set of numbers.

16. 10, 12, and 18 \_\_\_\_\_

17. What are the first 5 multiples of 7? \_\_\_\_\_

18. What is the LCM of 8 and 12? \_\_\_\_\_

19.  $2^5$  \_\_\_\_\_

20.  $10^4$  \_\_\_\_\_

21. 9 "squared" \_\_\_\_\_

22. 5 "cubed" \_\_\_\_\_

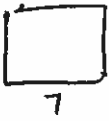
Find the square root of

23. 25 \_\_\_\_\_



Find the perimeter and area of each shape.

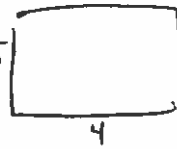
24-5.



P= \_\_\_\_\_

A= \_\_\_\_\_

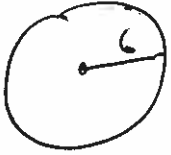
26-7.



P= \_\_\_\_\_

A= \_\_\_\_\_

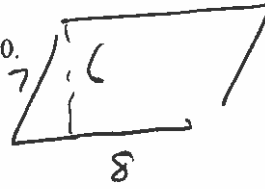
27-8.



P= \_\_\_\_\_

A= \_\_\_\_\_

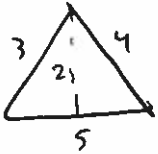
29-30.



P= \_\_\_\_\_

A= \_\_\_\_\_

31-2.

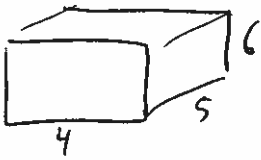


P= \_\_\_\_\_

A= \_\_\_\_\_

Find the volume and surface area.

33-4.



V= \_\_\_\_\_

S= \_\_\_\_\_

35-6.



V= \_\_\_\_\_

S= \_\_\_\_\_

37.  $\frac{3}{5} = \frac{?}{30}$

\_\_\_\_\_

Write as an improper fraction.

38.  $5\frac{3}{7}$

\_\_\_\_\_

39. 4

\_\_\_\_\_

Convert to a mixed or whole number.

40.  $\frac{13}{5}$

\_\_\_\_\_

41.  $\frac{32}{8}$

\_\_\_\_\_

Reduce to lowest terms.

42.  $\frac{16}{36}$

\_\_\_\_\_

Perform the indicated operation.

43.  $\frac{1}{5} + \frac{2}{5}$

\_\_\_\_\_

44.  $\frac{1}{2} + \frac{2}{3}$

\_\_\_\_\_

45.  $\frac{3}{4} + \frac{4}{5}$  \_\_\_\_\_

46.  $1\frac{2}{3} + 2\frac{5}{6}$  \_\_\_\_\_

47.  $2\frac{2}{3} - 1\frac{3}{4}$  \_\_\_\_\_

48.  $3\frac{5}{6} - 1\frac{1}{2}$  \_\_\_\_\_

49.  $2\frac{2}{5} + 4\frac{3}{7}$  \_\_\_\_\_

50.  $\frac{6}{7} \cdot \frac{3}{5}$  \_\_\_\_\_

51.  $\frac{6}{7} \cdot \frac{2}{3}$  \_\_\_\_\_

52.  $\frac{5}{6} \div \frac{10}{9}$  \_\_\_\_\_

53.  $1\frac{3}{4} \cdot 2\frac{4}{7}$  \_\_\_\_\_

54.  $10 \div 3\frac{1}{3}$  \_\_\_\_\_

55.  $.19 + .375$  \_\_\_\_\_

56.  $25.37 + 56.2$  \_\_\_\_\_

57.  $3.56 + 8$  \_\_\_\_\_

58.  $4.48 - 3.8$  \_\_\_\_\_

59.  $32.58 - 23.469$  \_\_\_\_\_

60.  $8 - 6.368$  \_\_\_\_\_

61.  $.7 \times .8$  \_\_\_\_\_

62.  $.83 \times 1000$  \_\_\_\_\_

63.  $.97 \times .28$  \_\_\_\_\_

64.  $.03 \times .08$  \_\_\_\_\_

65.  $.14 \div 5$  \_\_\_\_\_

66.  $65.8 \div 100$  \_\_\_\_\_

67.  $.414 \div 1.8$  \_\_\_\_\_

68.  $7 + 2$  \_\_\_\_\_

69.  $-7 + -5$  \_\_\_\_\_

70.  $-8 + 9$  \_\_\_\_\_

71.  $5 + -5$  \_\_\_\_\_

72.  $6 + -7$  \_\_\_\_\_

73.  $-3 - 7$  \_\_\_\_\_

74.  $-4 - -9$  \_\_\_\_\_

75.  $7 - -8$  \_\_\_\_\_

76.  $8 - 9$  \_\_\_\_\_

77.  $-4 - -4$  \_\_\_\_\_

78.  $6 - 5$  \_\_\_\_\_

79.  $(7)(8)$  \_\_\_\_\_

80.  $(-8)(-9)$  \_\_\_\_\_

81.  $(-4)(3)$  \_\_\_\_\_

82.  $-32 / -8$  \_\_\_\_\_

83.  $-48 / 6$  \_\_\_\_\_

**Make fractions and percents**

84-5.  $.6$  \_\_\_\_\_

86-7.  $.12$  \_\_\_\_\_

88-9.  $.171$  \_\_\_\_\_

90.  $.0007$  \_\_\_\_\_

91.  $4.8$  \_\_\_\_\_

**Make decimals**

92.  $1/2$  \_\_\_\_\_

93.  $1/3$  \_\_\_\_\_

94.  $11/20$  \_\_\_\_\_

**Make these percents into fractions and decimals**

95-6.  $8$  \_\_\_\_\_

97-8.  $25$  \_\_\_\_\_

99-100.  $104$  \_\_\_\_\_

Name \_\_\_\_\_

1.  $458 + 589$  \_\_\_\_\_

2.  $35\,745 + 45\,992$  \_\_\_\_\_

3.  $7534 - 3493$  \_\_\_\_\_

4.  $64\,534 - 45\,992$  \_\_\_\_\_

5.  $23 \times 599$  \_\_\_\_\_

6.  $2436 \times 34$  \_\_\_\_\_

7.  $2645 \div 9$  \_\_\_\_\_

8.  $43\,646 \div 858$  \_\_\_\_\_

Round 5086.3568 to the nearest

9. hundredth \_\_\_\_\_

10. thousandth \_\_\_\_\_

11. hundred \_\_\_\_\_

12. thousand \_\_\_\_\_

13. Which of 81, 83, and 85 is prime? \_\_\_\_\_

Find the average of

14. 8, 16, 26, and 34 \_\_\_\_\_

Write the factors of each number.

15. 24 \_\_\_\_\_

Find the greatest common factor for each set of numbers.

16. 12, 15, and 36 \_\_\_\_\_

17. What are the first 5 multiples of 6 \_\_\_\_\_

18. What is the LCM of 6 and 8? \_\_\_\_\_

19.  $2^6$  \_\_\_\_\_

20.  $10^5$  \_\_\_\_\_

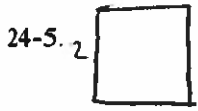
21. 8 "squared" \_\_\_\_\_

22. 5 "cubed" \_\_\_\_\_

Find the square root of

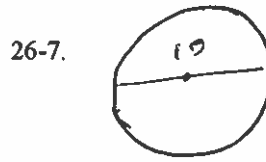
23. 81 \_\_\_\_\_

Find the perimeter and area of each shape.



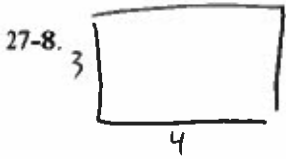
P= \_\_\_\_\_

A= \_\_\_\_\_



P= \_\_\_\_\_

A= \_\_\_\_\_



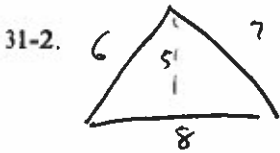
P= \_\_\_\_\_

A= \_\_\_\_\_



P= \_\_\_\_\_

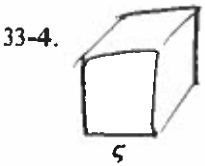
A= \_\_\_\_\_



P= \_\_\_\_\_

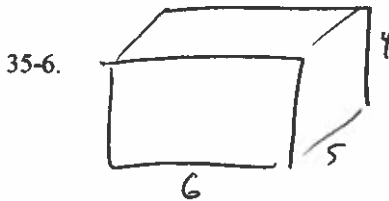
A= \_\_\_\_\_

Find the volume and surface area.



V= \_\_\_\_\_

S= \_\_\_\_\_



V= \_\_\_\_\_

S= \_\_\_\_\_

37.  $\frac{3}{5} = \frac{?}{30}$

\_\_\_\_\_

Write as an improper fraction.

38.  $5\frac{3}{7}$

\_\_\_\_\_

39. 4

\_\_\_\_\_

Convert to a mixed or whole number.

40.  $\frac{13}{5}$

\_\_\_\_\_

41.  $\frac{32}{8}$

\_\_\_\_\_

Reduce to lowest terms.

42.  $\frac{16}{36}$

\_\_\_\_\_

Perform the indicated operation.

43.  $\frac{1}{5} + \frac{2}{5}$

\_\_\_\_\_

44.  $\frac{1}{2} + \frac{2}{3}$

\_\_\_\_\_

45.  $\frac{3}{4} + \frac{4}{5}$  \_\_\_\_\_

46.  $1\frac{2}{3} + 2\frac{5}{6}$  \_\_\_\_\_

47.  $2\frac{2}{3} - 1\frac{3}{4}$  \_\_\_\_\_

48.  $3\frac{5}{6} - 1\frac{1}{2}$  \_\_\_\_\_

49.  $2\frac{2}{5} + 4\frac{3}{7}$  \_\_\_\_\_

50.  $\frac{6}{7} \cdot \frac{3}{5}$  \_\_\_\_\_

51.  $\frac{6}{7} \cdot \frac{2}{3}$  \_\_\_\_\_

52.  $\frac{5}{6} \div \frac{10}{9}$  \_\_\_\_\_

53.  $1\frac{3}{4} \cdot 2\frac{4}{7}$  \_\_\_\_\_

54.  $10 \div 3\frac{1}{3}$  \_\_\_\_\_

55.  $.49 + .375$  \_\_\_\_\_

56.  $65.37 + 56.2$  \_\_\_\_\_

57.  $4.56 + 8$  \_\_\_\_\_

58.  $4.38 - 3.8$  \_\_\_\_\_

59.  $32.38 - 23.469$  \_\_\_\_\_

60.  $5 - 2.368$  \_\_\_\_\_

61.  $.4 \times 8$  \_\_\_\_\_

62.  $.73 \times 1000$  \_\_\_\_\_

63.  $.67 \times .28$  \_\_\_\_\_

64.  $.02 \times .08$  \_\_\_\_\_

65.  $.12 \div 5$  \_\_\_\_\_

66.  $67.8 \div 100$  \_\_\_\_\_

67.  $.414 \div 1.8$  \_\_\_\_\_

68.  $6 + 2$  \_\_\_\_\_

- 69.  $-7 + -5$  \_\_\_\_\_
- 70.  $-8 + 9$  \_\_\_\_\_
- 71.  $5 + -5$  \_\_\_\_\_
- 72.  $6 + -7$  \_\_\_\_\_
- 73.  $-3 - 7$  \_\_\_\_\_
- 74.  $-4 - -9$  \_\_\_\_\_
- 75.  $7 - -8$  \_\_\_\_\_
- 76.  $8 - 9$  \_\_\_\_\_
- 77.  $-4 - -4$  \_\_\_\_\_
- 78.  $6 - 5$  \_\_\_\_\_
- 79.  $(7)(8)$  \_\_\_\_\_
- 80.  $(-8)(-9)$  \_\_\_\_\_
- 81.  $(-4)(3)$  \_\_\_\_\_
- 82.  $-32 / -8$  \_\_\_\_\_
- 83.  $-48 / 6$  \_\_\_\_\_

**Make fractions and percents**

- 84-5.  $.8$  \_\_\_\_\_
- 86-7.  $.16$  \_\_\_\_\_
- 88-9.  $.131$  \_\_\_\_\_
- 90.  $.0003$  \_\_\_\_\_
- 91.  $4.4$  \_\_\_\_\_

**Make decimals**

- 92.  $1/2$  \_\_\_\_\_
- 93.  $1/3$  \_\_\_\_\_
- 94.  $13/20$  \_\_\_\_\_

**Make these percents into fractions and decimals**

- 95-6.  $6$  \_\_\_\_\_
- 97-8.  $75$  \_\_\_\_\_
- 99-100.  $105$  \_\_\_\_\_

Prerequisite skills required: exponents (lesson 91)  
roots (sheet)

Roots can be written as fractional exponents.

$\sqrt[3]{8^2}$  can be written as  $8^{\frac{2}{3}}$ . The 3 in the original problem is called the index. It is written on the bottom of the fractional power. The 2 is a power. It goes on the top. Any time a problem does not have an index, assume the index is a 2. If it does not have a power, assume the power is a 1.

$\sqrt{5}$  can be written as  $5^{\frac{1}{2}}$

Rewrite with fractional powers.

1.  $\sqrt[3]{7^4}$  \_\_\_\_\_

2.  $\sqrt[3]{8^2}$  \_\_\_\_\_

3.  $\sqrt[13]{x^{12}}$  \_\_\_\_\_

4.  $\sqrt[4]{5^2}$  \_\_\_\_\_

5.  $\sqrt[3]{7^5}$  \_\_\_\_\_

6.  $\sqrt[3]{m^6}$  \_\_\_\_\_

7.  $\sqrt[7]{p^6}$  \_\_\_\_\_

8.  $\sqrt[3]{b^e}$  \_\_\_\_\_

9.  $\sqrt[19]{6^8}$  \_\_\_\_\_

10.  $\sqrt[30]{9^{20}}$  \_\_\_\_\_

11.  $\sqrt[3]{4}$  \_\_\_\_\_

12.  $\sqrt{8^7}$  \_\_\_\_\_

13.  $\sqrt{w}$  \_\_\_\_\_

14.  $\sqrt[36]{k^{21}}$  \_\_\_\_\_

15.  $\sqrt{q^{21}}$  \_\_\_\_\_

Rewrite without fractional powers.

1.  $3^{\frac{2}{3}}$  \_\_\_\_\_

2.  $4^{\frac{11}{15}}$  \_\_\_\_\_

3.  $5^{\frac{1}{13}}$  \_\_\_\_\_

4.  $a^{\frac{7}{2}}$  \_\_\_\_\_

5.  $b^{\frac{c}{d}}$  \_\_\_\_\_

6.  $c^{\frac{13}{93}}$  \_\_\_\_\_

7.  $6^{\frac{1}{2}}$  \_\_\_\_\_

8.  $7^{\frac{1}{10}}$  \_\_\_\_\_

9.  $8^{\frac{2}{7}}$  \_\_\_\_\_

10.  $w^{\frac{6}{11}}$  \_\_\_\_\_

11.  $x^{\frac{9}{2}}$  \_\_\_\_\_

12.  $y^{\frac{1}{2}}$  \_\_\_\_\_

13.  $143^{\frac{5}{8}}$  \_\_\_\_\_

14.  $h^{\frac{5}{6}}$  \_\_\_\_\_

15.  $94734^{\frac{1}{3}}$  \_\_\_\_\_



Name \_\_\_\_\_

Prerequisite skills required: exponents (lesson 91)

Negative exponents flip things.

$$5^3 = 125, \text{ so } 5^{-3} = \frac{1}{125}$$

$$2^4 = 16, \text{ so } 2^{-4} = \frac{1}{16}$$

1.  $2^{-2}$  \_\_\_\_\_
2.  $3^{-2}$  \_\_\_\_\_
3.  $4^{-2}$  \_\_\_\_\_
4.  $5^{-2}$  \_\_\_\_\_
5.  $6^{-2}$  \_\_\_\_\_
6.  $7^{-2}$  \_\_\_\_\_
7.  $8^{-2}$  \_\_\_\_\_
8.  $9^{-2}$  \_\_\_\_\_
9.  $10^{-2}$  \_\_\_\_\_
10.  $11^{-2}$  \_\_\_\_\_
11.  $12^{-2}$  \_\_\_\_\_
12.  $2^{-3}$  \_\_\_\_\_
13.  $3^{-3}$  \_\_\_\_\_
14.  $4^{-3}$  \_\_\_\_\_
15.  $6^{-3}$  \_\_\_\_\_
16.  $7^{-3}$  \_\_\_\_\_
17.  $8^{-3}$  \_\_\_\_\_
18.  $9^{-3}$  \_\_\_\_\_

19.  $10^{-3}$  \_\_\_\_\_
20.  $3^{-4}$  \_\_\_\_\_
21.  $4^{-4}$  \_\_\_\_\_
22.  $5^{-4}$  \_\_\_\_\_
23.  $2^{-5}$  \_\_\_\_\_
24.  $3^{-5}$  \_\_\_\_\_
25.  $2^{-6}$  \_\_\_\_\_
26.  $2^{-7}$  \_\_\_\_\_
27.  $2^{-8}$  \_\_\_\_\_
28.  $2^{-9}$  \_\_\_\_\_
29.  $2^{-10}$  \_\_\_\_\_
30.  $10^{-4}$  \_\_\_\_\_
31.  $10^{-5}$  \_\_\_\_\_
32.  $10^{-6}$  \_\_\_\_\_
33.  $10^{-7}$  \_\_\_\_\_
34.  $10^{-8}$  \_\_\_\_\_
35.  $10^{-9}$  \_\_\_\_\_

Prerequisite skills required: Negative exponents sheet #1

Negative exponents flip things.

$$\left(\frac{1}{3}\right)^2 = \frac{1}{9}, \text{ so } \left(\frac{1}{3}\right)^{-2} = 9$$

$$\left(\frac{2}{3}\right)^3 = \frac{8}{27}, \text{ so } \left(\frac{2}{3}\right)^{-3} = \frac{27}{8}$$

1.  $\left(\frac{1}{2}\right)^{-2}$  \_\_\_\_\_

16.  $\left(\frac{8}{3}\right)^{-2}$  \_\_\_\_\_

2.  $\left(\frac{1}{2}\right)^{-3}$  \_\_\_\_\_

17.  $\left(\frac{9}{4}\right)^{-2}$  \_\_\_\_\_

3.  $\left(\frac{1}{2}\right)^{-4}$  \_\_\_\_\_

18.  $\left(\frac{3}{5}\right)^{-2}$  \_\_\_\_\_

4.  $\left(\frac{1}{2}\right)^{-5}$  \_\_\_\_\_

19.  $\left(\frac{4}{6}\right)^{-2}$  \_\_\_\_\_

5.  $\left(\frac{1}{3}\right)^{-3}$  \_\_\_\_\_

20.  $\left(\frac{2}{7}\right)^{-2}$  \_\_\_\_\_

6.  $\left(\frac{1}{3}\right)^{-4}$  \_\_\_\_\_

21.  $\left(\frac{3}{8}\right)^{-2}$  \_\_\_\_\_

7.  $\left(\frac{1}{4}\right)^{-2}$  \_\_\_\_\_

22.  $\left(\frac{5}{9}\right)^{-2}$  \_\_\_\_\_

8.  $\left(\frac{1}{5}\right)^{-2}$  \_\_\_\_\_

23.  $\left(\frac{8}{10}\right)^{-2}$  \_\_\_\_\_

9.  $\left(\frac{1}{6}\right)^{-2}$  \_\_\_\_\_

24.  $\left(\frac{7}{11}\right)^{-2}$  \_\_\_\_\_

10.  $\left(\frac{1}{7}\right)^{-2}$  \_\_\_\_\_

25.  $\left(\frac{6}{7}\right)^{-3}$  \_\_\_\_\_

11.  $\left(\frac{1}{8}\right)^{-2}$  \_\_\_\_\_

26.  $\left(\frac{5}{8}\right)^{-3}$  \_\_\_\_\_

12.  $\left(\frac{1}{9}\right)^{-2}$  \_\_\_\_\_

27.  $\left(\frac{3}{4}\right)^{-3}$  \_\_\_\_\_

13.  $\left(\frac{1}{10}\right)^{-2}$  \_\_\_\_\_

28.  $\left(\frac{2}{3}\right)^{-4}$  \_\_\_\_\_

14.  $\left(\frac{1}{11}\right)^{-2}$  \_\_\_\_\_

29.  $\left(\frac{3}{10}\right)^{-4}$  \_\_\_\_\_

15.  $\left(\frac{1}{12}\right)^{-2}$  \_\_\_\_\_

30.  $\left(\frac{2}{3}\right)^{-5}$  \_\_\_\_\_