

Math Power

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Name: (First) _____ (Last) _____

School: _____ Grade: _____

MAP 280 (T1) Issue 10

Re-Writing in Slope Intercept Form

1. Re-write the equation in slope-intercept form:

$$4 = x + y$$

2. Re-write the equation in slope-intercept form:

$$0.2x + 5y = 7$$

3. Re-write the equation in slope-intercept form:

$$-5y - 6x = 2$$

4. Re-write the equation in slope-intercept form:

$$4x = 5 + 3y$$

5. Re-write the equation in slope-intercept form:

$$x = 2.5y + 3$$

Slope and Linear Equation

6. Given two points: P(-5, -2) and Q(-23, -14). Find the slope(PQ).

7. Given two points: P(-5, 0) and Q(35, 5). Find the slope(PQ).

8. Given two points: P(3, -2) and Q(15, -11). Find the slope(PQ).

9. Given two points: P(-3, -4) and Q(-2.75, -4.5). Find the slope(PQ).

10. Given two points: P(4, -3) and Q(0, 25). Find the slope(PQ).

11. Given two points: P(0, 2) and Q(28, 34). Find the linear equation in slope intercept form: $y = mx + b$.

12. Given two points: P(0, -5) and Q(45, 35). Find the linear equation in slope intercept form: $y = mx + b$.

13. Given two points: P(-2, 0) and Q(-0.75, 0.75). Find the linear equation in slope intercept form: $y = mx + b$.

14. Given two points: P(4, -3) and Q(5.5, -2.5). Find the linear equation in standard form: $ax + by = c$ (with integer $c > 0$).

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15. Given two points: P(0, 4) and Q(12, -2).
Find the linear equation in standard form:
 $ax + by = c$ (with integer $c > 0$).

21. $-6(x - 4)(x + 2) =$

Multiplying Polynomials

$(2x - 3)(x + 7)$
 $= 2x^2 + 11x - 21$

	$2x - 3$	
x	$2x^2$	$-3x$
$+$	$14x$	-21
7		

$\circlearrowleft 11x$

22. $3(2x - 5)(6x - 1)$

$= ___x^2 + ___x + ___$

23. $5(3x + 8)(x + 3)$

$= ___x^2 + ___x + ___$

16. $(x - 4)(x + 6) =$

24. $0.7(3x - 2)(2x - 3)$

$= ___x^2 + ___x + ___$

17. $(x - 4)(x - 1) =$

25. $-0.5(3x + 5)(5x + 1)$

$= ___x^2 + ___x + ___$

18. $(x - 4)(x + 7) =$

More Factoring Trinomials

Factor each of the trinomials. (Separate the GCF from the coefficients first if possible.)

19. $\frac{1}{2}(x - 4)(x + 8) =$

26. $21x^2 - 38x - 48$

20. $-0.5(x - 4)(x - 2) =$

27. $30x^2 + 73x + 40$

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28. $8x^2 + 47x - 6$

37. $12 = 3(6 + x)$

29. $18x^2 + 39x + 20$

38. $-9 = 3(-11 + 2x)$

30. $-75x^2 + 95x + 50$

39. $-2(x - 6) = -(x - 9)$

Solving Linear Equations

31. $x - 5 = -9 - x$

40. $-4(-5x + 13) = 8$

32. $-3x - 2 = 16 + 6x$

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41. $(2\frac{1}{2})^{-2} =$ (answer in integer or decimal)

33. $3 - 2x = -6 + x$

42. $\frac{2}{5} \div \frac{1}{10} =$

34. $3.5x - 3 - 4x = 5 - 4.5x + 3x$

43. $1 - 2 + 3 - 4 + 5 - 6 + \dots + 99 - 100 =$

35. $-3x - 5 = 15 + 1x$

44. $25^2 \times 5^4 = 5^\square$
 $\square =$ _____

36. $-1 = -(4 - 3x)$

45. What percent of an hour is 36 min?

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46. $4x^5 \div (3x^7) =$

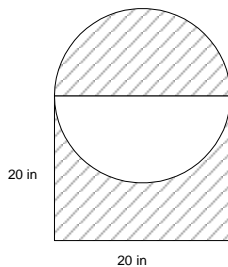
47. Simplify

$$(1+\frac{1}{2})(1-\frac{1}{2})(1+\frac{1}{3})(1-\frac{1}{3})(1+\frac{1}{4})(1-\frac{1}{4})\dots(1+\frac{1}{9})(1-\frac{1}{9})$$

48. Solve the equation :

$$-18 = -3(2 - 4x)$$

49. Find the area of the shaded region. (Use 3.14 for π .)

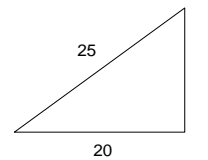


50. Greg is able to save \$1800 in 8 weeks.
How many weeks will it take him to save \$8100?

51. If 65 pencils cost c cents, how many dollars would 91 pencils cost?

- A) $\frac{500c}{7}$
- B) $\frac{7c}{500}$
- C) $\frac{7}{500c}$
- D) $\frac{c}{3500}$

52. If one leg is 20, the hypotenuse is 25, what is the area of the triangle?



53. In Ann's debate team, 30 students have Internet access, 20 students have fax, 10 students have neither, 7 students have both fax and Internet access. How many students are in Ann's debate team in total?

54. John and Harry both shared the cost of a model airplane. If John contributed three times as much as Harry, at what percentage did John contribute?

55. Ms. Sanchez drove 198 miles in 5 hours and 30 minutes. What was her average speed in miles per hour?

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56. Stan bought 450 gallons of oil at \$1.49 per gallon and 350 gallons of oil at \$1.51 per gallon. How much money did he spend on oil in total?

62. $(3^9 \times 3^4)^2 \div 3^5 = 27^{\square}$

63. Express $5 \times 10^5 \times 4 \times 10^5$ in scientific notation as $a \times 10^b$. What is the sum of a and b ?

57. The distance from Los Angeles to Denver is 810 miles. The scale on the map is 1 ft = 180 miles. What is the distance in ft on the map between the two cities?

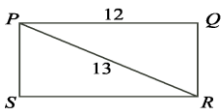
64. The average score of 13 students on an Algebra is 83. If each student earns an extra 5 points, what is the new average?

58. The price of a calculator was \$60 last year. If the price increased by 20% this year and there is a 5% sales tax, how much will Jeff need to pay for one calculator?

65. The sum of two consecutive negative odd integers is -112. What is the smaller number?

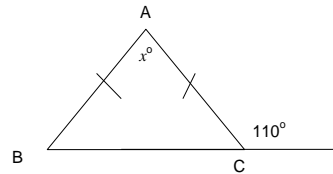
59. 20 vehicles of tricycles and sedans are spotted in a parking lot. If a total of 68 wheels are spotted, how many tricycles are there?

66. What percent of $0.05x$ is $0.03x$?



60. In rectangle PQRS, $PQ = 12$ and $PR = 13$. What is the area of rectangle PQRS?

67. $\triangle ABC$ is an isosceles. Find the value of x .



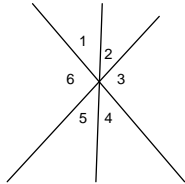
Review 280

61. $\frac{1.2 \times 10^{-1}}{4.8 \times 10^{-4}} = \underline{\hspace{2cm}}$ (in scientific notation)

68. Solve the equation:
 $4x^2 = 25x - 6$

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69. $\angle 1 = \angle 5 = 30^\circ$, $\angle 3 =$ _____.



70. 40 eggs cost \$3 at a market. How much money would you need to buy 80 eggs?

71. A club had \$35 in its treasury. The club members decided to sell raffle tickets at \$1.50 each, and spent \$225 on prizes for the raffle. If the club treasury showed a final balance of \$200, how many raffle tickets did they sell?

72. Label the areas of the four shaded triangles as a , b , c , and d .

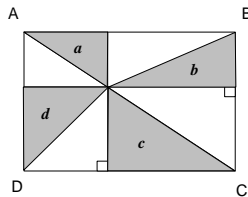


Figure not drawn to scale.

How are these quantities related?

- A) $ac = bd$
- B) $a + c = b + d$
- C) $|a - c| = |b - d|$
- D) $\frac{a}{c} = \frac{b}{d}$

73. An empty barrel weighs $\frac{2}{7}$ as much as a full barrel. If a full barrel weighs 126 pounds, how much does it weigh when it is half-full?

74. Find the slope for the line segment AB with $A=(1, 2)$ and $B=(3, -6)$.

75. Henry is driving at a speed of 30 miles per hour. How many miles will he travel in 1 hour and 20 minutes?

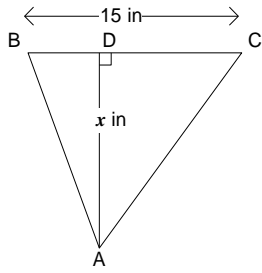
76. If three shirts and five ties cost \$230, and five shirts and one tie cost \$200, what is the price of one shirt?

77. It takes Jim 10 hours to build a kitchen cabinet. If Jim and Jerry can finish the job together in 2 hours, how many hours will it take Jerry to build it alone?

78. The average score of Alex, Brian, and Chad is 73. The average score of Dian and Eliz is 58. What is their combined average score?

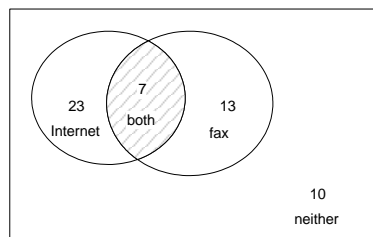
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79. The triangle below has an area of 90 in^2 .
Find the height of the triangle.



Answer Key

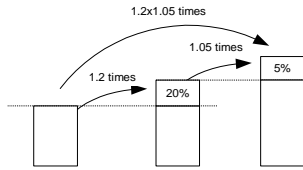
1. $y = -x + 4$
2. $y = -0.4x + 1.4$
3. $y = -1.2x - 0.4$
4. $y = \frac{4}{3}x - \frac{5}{3}$
5. $y = 0.4x - 1.2$
6. $\frac{2}{3}$
7. $\frac{1}{8}$
8. $-\frac{3}{4}$
9. -2
10. -7
11. $Y = \frac{8}{7}X + 2$
12. $Y = \frac{8}{9}X - 5$
13. $Y = \frac{3}{5}X + \frac{6}{5}$
14. $X - 3Y = 13$
15. $X + 2Y = 8$
16. $x^2 + 2x - 24$
17. $x^2 - 5x + 4$
18. $x^2 + 3x - 28$
19. $\frac{1}{2}x^2 + 2x - 16$
20. $-0.5x^2 + 3x - 4$
21. $-12x^2 + 12x + 48$
22. $36x^2 - 96x + 15$
23. $15x^2 + 85x + 120$
24. $4.2x^2 - 9.1x + 4.2$
25. $-7.5x^2 - 14x - 2.5$
26. $(3x - 8)(7x + 6)$
27. $(5x + 8)(6x + 5)$
28. $(x + 6)(8x - 1)$
29. $(3x + 4)(6x + 5)$
30. $-5(5x + 2)(3x - 5)$
31. $x = -2$
32. $x = -2$
33. $x = 3$
34. $-0.5x - 4 = 5 - 1.5x$
 $\Rightarrow 2x = 9$
 $\Rightarrow x = 4.5$
35. $x = -5$
36. $x = 1$
37. $x = -2$
38. $x = 4$
39. 3
40. $x = 3$
41. $(2\frac{1}{2})^{-1} = 0.4$
 $0.4^2 = 0.16$
42. 4
43. $(1 - 2) + (3 - 4) + (5 - 6) + \dots + (99 - 100) = -50$
44. $25^2 \times 5^4 = 5^4 \times 5^4 = 5^8$
45. $36 \div 60 = 0.6 = 60\%$
46. $\frac{4}{3x^2}$
47. $\frac{5}{9}$
48. $x = -1$
49. Flip the upper shaded semicircle to fill up the empty lower semicircle, making the square complete.
 $20 \times 20 = 400 \text{ in}^2$
50. $\frac{1800}{8} = \frac{900}{4} = \frac{8100}{x} \text{ b}$
 $x = 36 \text{ wks}$
51. B
52. $20:25 = 4:5$
3 is missing from 3:4:5 (Pythagorean triple)
 $5 \times 5 = 25$
 $5 \times 4 = 20$
 $5 \times 3 = 15$
 $\frac{1}{2} \times 15 \times 20 = 150$
53. The number of students with Internet access only is 23, fax only, 13. Thus, there are $30 + 20 - 7 = 43$ students with either Internet access or fax. Since there are 10 students have neither Internet access or fax, the total number of students is $43 + 10 = 53$.



54. $3 + 1 = 4$
 $3 \div 4 = 75\%$
55. $\frac{198}{\frac{1}{5.2}} = \frac{198}{5.5} = 36 \text{ miles per hour}$
56. $450 \times 1.49 + 350 \times 1.51 = \$1,199$
57. $810/180 = 4\frac{1}{2} = 4 \frac{1}{2} \text{ (ft)}$

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58. Since there is a 20% increase, it becomes 1.2 times of the original price. The new price becomes $\$60 \times 1.2 = \72 . Since there is a additional 5% tax, the total becomes 1.05 of the new price, so $\$72 \times 1.05 = \75.60 (which is equal to $60 \times 1.2 \times 1.05$).



59. $20 \times 3 = 60$
 $68 - 60 = 8$
 Ans = 8 sedans & 12 tricycles.
60. $PQ^2 + QR^2 = PR^2$
 $PQ = 5$
 area = $5 \times 12 = 60$
61. $\frac{10^3}{4} = 2.5 \times 10^2$
 Ans = 2.5 & 2
62. $3^{21} = 27^7$
 $\square = 7$
63. 2×10^{11}
 $2 + 11 = 13$
64. $83 + 5 = 88$
65. $-112 - 2 = -114$
 $-114 \div 2 = -57$
66. $0.03 \div 0.05 = 60\%$
67. 40
68. $(4x - 1)(x - 6) = 0$
 $x = 1/4$ & 6
69. 120°
70. $3 \times (80 \div 40) = \6
71. $225 + 200 - 35 = 390$
 $390 \div 1.5 = 260$

72. A
 Let
 $x = AP$; $y = BP$; $z = BS$; $w = CS$
 Then
 $2a = xz$; $2c = wy$
 $2b = yz$; $2d = xw$
 $4ab = xyzw = 4cd$
 $ab = cd$

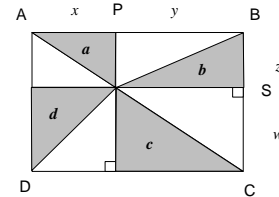


Figure not drawn to scale.

73. Method I)
 $\frac{2}{7} + \frac{1}{2}(\frac{2}{7}) = \frac{4.5}{7}$
 $126 \times \frac{4.5}{7} = 18 \times 4.5 = 81$
- Method II)
 $126 \times \frac{2}{7} = 36$
 $126 - 36 = 90$
 $\frac{1}{2} \times 90 = 45$
 $45 + 36 = 81$
74. -4
75. You need time in hour. So, let's convert 1 hour 20 min into $1\frac{1}{3}$ hours. Since distance = speed \times time, we have $30 \times 1\frac{1}{3} = 40$ miles.
76. $3s + 5t = 230$
 $5s + t = 200$
 $22s = 770$
 $s = 35$
77. $\frac{1}{\frac{1}{2} - \frac{1}{10}} = \frac{1}{\frac{4}{10}} = 2.5$ (hrs)
78. $\frac{1}{5}(73 \times 3 + 58 \times 2) = 67$
79. $\frac{1}{2}(12 \times 15) = 90$