

October 21, 2024	By Dr. Li E-mail : DL@MathEnglish.com
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School: Grade:	



Squaring a Number with Double prefix

1. Find the square of 72.





- 72 = 70 + 2
- $72^2 = 70^2 + 142 \times 2$

5. Find the square of 76.

6. Find the square of 77.

Method I:

L = 80 R = 74 H = 3

 $77^2 = L \times R + H \times H =$

____×____+ ____×____ = ____

Method II: 77 = 80 + (-3)

$$77^2 = 80^2 - 157 \times 3$$

______ - _____ = _____

- 2. Find the square of 723.
 - 723 = 720 + 3
 - $723^2 = 720^2 + 1443 \times 3$

_____ + ____ = _____



3. Find the square of 74.

8. Find the square of 79.

4. Find the square of 75.

9. Find the square of 80.



10. Find the square of 81.	17. (-11) – 16 =
Signed Numbers Add/Sub 11(-10) + 11 =	18. (-17) + 16 =
1213 + 15 =	19. 14 + (-11) =
13(-14) – 12 =	2015 – (-18) =
14. (-17) + 9 =	21. (-14) – 17 =
15. 17 + 14 =	22. 18 + 12 =

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16. (-13) – 9 =

23. -(-9) + (-11) =

24(-16) – 11 =	MAP 260 (T1)	Issue 10 Solving Linear Equations $31. z + 8 = 12$
25.6 – + 7 = 11		32. $u + 1 = 3$
26.1 + (-2) – = 7		33. <i>t</i> - 1 = 2
27 + 2 + 2 = -3		34. 2 <i>y</i> + 1 = 3
28.2+3=-3		35.9 = 3t + 6

 $29.3 + 6 - _ = 3$ 36.5 = 1.3u + 1.1

30. _____+ (-7) + 3 = -11

37. 1 =
$$-z + 4$$

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38. -a + 2 = -1

44. 2 × 90% =

 $39. \frac{1}{2}b + 2 = 1 \qquad 45.4 \times 11\% =$

 $40. \frac{1}{9}y + 1 = 10 \qquad \qquad 46. .5 \times 95\% =$

Percent Operations	479 × 15% =
<u>Question set</u> [41 - 50]	
Speedy percent computation.	

41..8 × 30% =

48. .3 × 35% =

42. .2 × 50% =

49..7 × 55% =

43..6 × 70% =

50. .2 × 75% =

Ratio and Rate

- 51. A brand of perfume is mixed with a ratio of 3 drops of pure essence to 7 drops of alcohol. How many drops of pure essence should be mixed with 56 drops of alcohol?
- 55. The Bucks have won 27.5% of their games. The Tigers have won 9 out of 36 games. Which team has the better record?A) The BucksB) The Tigers
 - C) They tie

- 52. There are 175 shovels and 100 brooms. Write a ratio of shovels to brooms. (Reduce your answer to the lowest terms.)
- 56. In one community, the electric bill for 24 hours of running a specific type of air conditioner without stopping is \$20. In a second community, the bill for 36 hours of running the same type of air conditioner without stopping is \$30. Which community has the cheaper rate of electricity?
 - A) first community
 - B) second community
 - C) same rate
- 53. There are 120 girls and 144 boys in Frostberg Middle School. What is the ratio of girls to boys?

Question set [57 - 59]

Typing 50 words takes Carl 3 minutes.

- 57. How long will it take him to type 100 words?
- 54. A midsize car can travel 210 miles on 7 gallons of gas. A minivan can travel 246 miles on 10 gallons of gas. Which car saves more gas? A) car
 - B) minivan
 - C) both the same

58. If a paragraph has 150 words, how long will it take Carl to finish typing the paragraph?



- 59. How long (in minutes with decimal) will it take him to finish 40 words?
- 64. Express the following ratios in the lowest terms.

(a) 50 : 60 =
(b) 70 : 55 =
(c) 6.3 : 1.8 =

- 60. Suppose a 180 lbs man weighs 31.2 lbs on the moon. How much will a 60 lbs boy weigh on the moon?
- 65. Express the following ratios in the lowest terms.(a) 80% : 32% =

(b) 18:12:60 =

(c) 100 : 125 : 625 =

Note: Must reduce the ratio to the lowest terms.

61. It takes Ann 30 minutes to make 5 straw arrows, while it takes Ben 20 minutes to make 4 straw arrows. How many straw arrows can each make within 2 hours?

- 62. Olives come packaged in
 A) 10-ounce jar, which sells for \$2.50, or
 B) 6-ounce jar, which sells for \$1.80.
 Which is a better buy?
 A) A
 B) B
 C) Same deal
- 66. A recipe for rhubarb cake calls for $1\frac{1}{4}$ cups of sugar for every $2\frac{1}{2}$ cups of flour. How many cups of flour are needed if the baker intends to use 3 cups of sugar?

- 63. Peter can shoot 5 bull's-eyes in 6 darts. Jack can shoot 9 bull's-eyes in 12 darts. Who shoots better?A) PeterB) JackC) Both the same
- 67. Rabbits eat 2 out of every 5 plants in a garden. If there are still 60 plants left, how many plants have been eaten?



68. A balloon hovers directly above a tree. The balloon casts a shadow 24 m. The tree is 3-m tall and has a 4-m shadow. Find the height of the balloon.

73. Find the value of A.

$$\frac{3}{8} + 1 = \frac{A}{48}$$

73. Find the value of A. $\frac{3}{8} + 1 = \frac{A}{48}$

<u>Question set</u> [69 - 70]

The costs for meter parking are listed below:

Hour	Rates
First hour	\$5
Each additional Hour*	\$2
Maximum	\$30

69. How much will it cost for parking from 10:25 am until 1:45 pm?

74.
$$\frac{2}{3}(1+2+3) - \frac{1}{4}(3+4+5) =$$

 $75.\ 0.2 \times 0.4 \times 0.6 \times 2.5 \times 5 =$

70. With only \$15, how many hours at most can you park?

(Any smart way?)

Review 250

76. $15 = \square\%$ of 25

71. Reduce the fraction to the lowest terms.

 $\frac{30}{48}$ _____

77.40% of
$$\Box = 200$$

72. Reduce your answer to the lowest terms.

$$\frac{3}{10} \div 1\frac{2}{5} =$$

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78. Find the value of \Box in the following division problem:

 $146 \div \square = 16 \text{ R} 2$

82. The area of the triangle below is 40. What is the height as indicated in the following figure?



79. $3^{1/8} = 0^{1/6}$

- 80. The width of a rectangle is 10 inches. It has a perimeter of 50 inches. What is the area of the rectangle?
- 83. A rectangle is formed by connecting three squares in equal size. If each smaller square has an area of 36 in², what is the perimeter of the rectangle?



81. What fraction of the figure below is shaded?

	///

A)	5/8
B)	$^{1}/_{2}$
C)	3/4
D)	7/16

84. Andy earned an average of 80 in four math tests. Through the permission of his math teacher, by dropping the lowest score at the end, his average increased by 10. What was his lowest score of the four tests?

85. How many positive whole numbers smaller than 1000 are either multiples of 9 or multiples of 11?



86. It takes a machine 12 minutes to fill 200 bottles of soda. At this rate, how many minutes will it take two such machines to fill 500 bottles of soda?

Question set [89 - 90]

The following figure consists of 3 squares. The perimeter of the figure is 40 in.

- 87. Marc has 150 cards in his collection. One third of them are sports figures. Half of the remaining are musicians. How many are musicians?
- 89. What is the length of each side of a square?

90. Find the area of the figure.

88. Phil ran in 3 races that lasted 12 minutes each. Then he ran in another race that lasted 14 minutes. For how many <u>minutes</u> in all did he run in races?

Answer Ley

1.	5184	43.	.42
2.	518,400 + 4,329	44.	1.8
	= 522,729	45.	.44
3.	54/6	46.	.475
4.	5625	47.	.135
5.	5776	48.	.105
6.	5929	49.	.385
7.	6084	50.	.15
8.	6241	51.	$\frac{3(pure)}{2} = \frac{\Delta(pure)}{2}$
9.	6400		7(alcohol) 56(alcohol) $\Lambda = 2\Lambda$
10.	6561	52	175.100 - 7.4
11.	21	52.	175.100 = 7.4 120.144 = 10.12 = 5.6
12.	2	55.	120.144 - 10.12 - 5.0
13.	2	54.	Δ midsize: $\frac{210}{210} = 30$
14.	-8		$\frac{1}{2}$ minimizer: $\frac{246}{7} = 24.6$
15.	31	55	A
16.	-22	55.	Tigers = $\frac{9}{-1} = \frac{1}{4} = 0.25 \le 0.275 = Bucks \checkmark$
17.	-27		$\frac{11603}{36} = \frac{4}{36} = 0.23 < 0.275 = 1000000000000000000000000000000000000$
18.	-1	50.	C Both have the same rate
19.	3		$\frac{20}{5} = \frac{5}{5}$
20.	3		24 - 6 30 5
21.	-31		$\frac{1}{36} = \frac{1}{6}$
22.	30	57.	6 min
23.	-2	58.	9 min
24.	5	59.	$\frac{40}{50} = \frac{4}{5}$
25.	2		$\frac{4}{5} \times 3 = 2.4 \text{ min}$
26.	-8	60.	10.4 lb
27.	-7	61.	(a) $120 \times \frac{5}{2} = 20$ (Ann)
28.	8		(b) $120 \times \frac{4}{24} = 24$ (Ben)
29.	6	62.	A
30.	-7	•=•	$\frac{1}{\sqrt{A}}$: 2.5÷10 = 0.25 (per ounce)
31.	4		$B: 1.80 \div 6 = 0.30$ (per ounce)
32.	2	63.	А
33.	3	64.	(a) 5:6
34.	1		(b) 14:11
35.	1		(c) 7:2
36.	3	65.	(a) 5:2 (b) 2:2:10
37.	3		(b) $3:2:10$ (c) $4:5:25$
38.	3	66	$S \cdot E = 1\frac{1}{2} \cdot 2\frac{1}{2} = 1 \cdot 2 = 2 \cdot 6$
39.	-7	00.	3 . 1 - 14 . 22 - 1 . 2 - 3 : 0 Ans = 6 cups of flour
40.	54	67.	2:3 = 40:60
41	.24		$60 \times \frac{2}{3} = 40$
42	10		3
-т∠.	.10		

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68. shadow : height = 4 : 3 = 24 : 18Ans = 18 m69. 3 hours and 20 minutes Needed to pay for 4 hours $5 + 3 \times 2 = \$11$ 70. 15 - 5 = 10 $10 \div 2 = 5$ (hours after first hour) 1 + 5 = 6 hours 71. $\frac{5}{8} = 5/8$ 72. $\frac{3}{14} = 3/14$ 73. 66 74. $\frac{2}{3} \times 6 - \frac{1}{4} \times 12 = 4 - 3 = 1$ 75. 0.6 76. 60 77. 500 78. 146 - 2 = 144 = 16×9 Ans = 979. $3^{1}/_{8} = 3.125 = 312.5\%$ 80. $50 \div 2 = 25$ 25 - 10 = 15 $10 \times 15 = 150 \text{ in}^2$ 81. A 82. $40 \times 2 \div 8 = 10$

- 83. $36 = 6 \times 6$ $2 \times (1 + 3) = 8$ $8 \times 6 = 48$ in
- 84. $80 \times 4 90 \times 3 = 50$
- 85. 1000÷9 = 111 R 1 There are 111 multiples of 9. 1000÷11 = 90 R 10 There are 90 multiples of 11. 1000÷99 = 10 R 10 There are 10 multiples of 99. 111 + 90 - 10 = 191



- 86. $500 \div 2 = 250$ $\frac{12}{200} \times 250 = \frac{6}{100} \times 250 = 6 \times 2.5 = 15 \text{ (min)}$
- 87. $150 \times \frac{2}{3} \times \frac{1}{2} = 50$
- 88. 50 (min)
- 89. $40 \div 8 = 5$
- 90. $5 \times 5 = 25$ $25 \times 3 = 75$