

Curriculum Outcome

(N5) Determine the square root of positive rational numbers that are perfect squares.

(N6) Determine an approximate square root of positive rational numbers that are non-perfect squares.

(SS2) Determine the surface area of composite 3-D objects to solve problems

(N4) **Explain and apply the order of operations, including exponents, with and without technology.**



Please Complete
Questions
Pages
18 and 19.

4) a,c,e without

5) a,c,e without

7) a, c, e without

9)a, c

10) a, c,e

11) a,b

12)a c

13) ac

15 (Estimate first then answer the
question *Show work*)

19 a c

ENJOY!

Name : _____

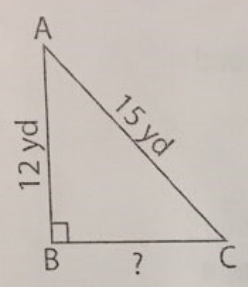
Score : _____

Pythagorean Theorem

Sheet 1

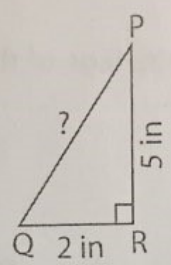
Determine the missing length in each right triangle using the Pythagorean theorem. Round the answer to the nearest tenth.

1)



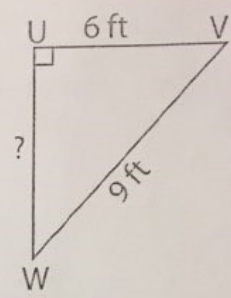
BC = _____

2)



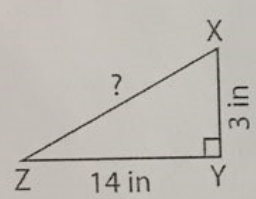
PQ = _____

3)



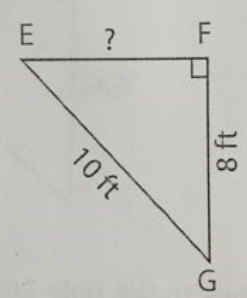
UW = _____

4)



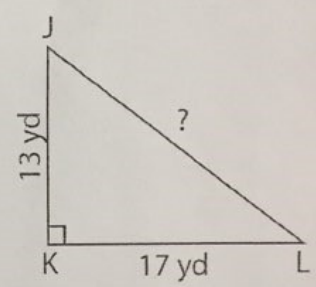
XZ = _____

5)



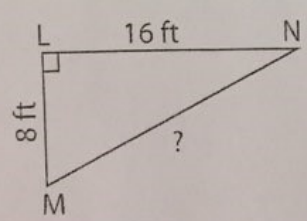
EF = _____

6)



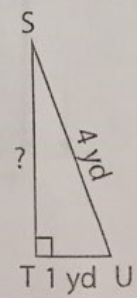
JL = _____

7)



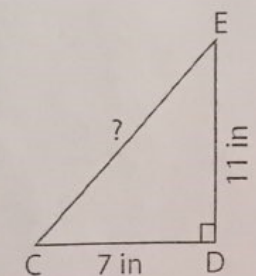
MN = _____

8)



ST = _____

9)

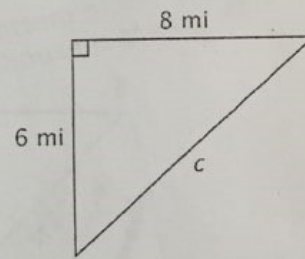


CE = _____

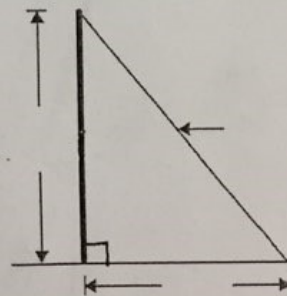
Lesson 2: Pythagorean Theorem

Teacher Blackline #1

- 1) If one leg of a right triangle is 12 and the other leg is 16, what is the length of the hypotenuse in this right triangle?
- 2) Find the missing measure if a and b are the legs of the right triangle and c is the hypotenuse, with $a = 11$ and $c = 61$.
- 3) The measures of three sides of a triangle are given. Determine whether a triangle with sides 9, 40 and 41 is a right triangle. Explain your answer.
- 4) Find the missing side of the triangle.



- 5) A telephone pole support cable attaches to the pole 20 feet high. If the cable is 25 feet long, how far from the bottom of the pole does the cable attach to the ground?



Lesson 2: Pythagorean Theorem

Student Worksheet #2

- 1) Find the length of the hypotenuse of a right triangle, if one leg is 15 and the other leg is 8.

- 2) The legs of a right triangle have lengths a and b . The hypotenuse has length c . Find the unknown length for each triangle.
(a) $b = 18$, $c = 82$ (b) $a = 12$, $c = 37$

- 3) The measures of three sides of a triangle are 9, 16, and 20. Determine whether the triangle is a right triangle. Explain your answer.

- 4) The size of a television screen is given by the length of the diagonal of the screen. What size is a television screen that is 21.6 inches wide and 16.2 inches high?

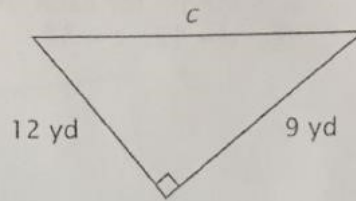
- 5) If the diagonal of a rectangle measures 60 inches and one side measures 48 inches, what is the length of the other side of the rectangle?

Lesson 2: Pythagorean Theorem

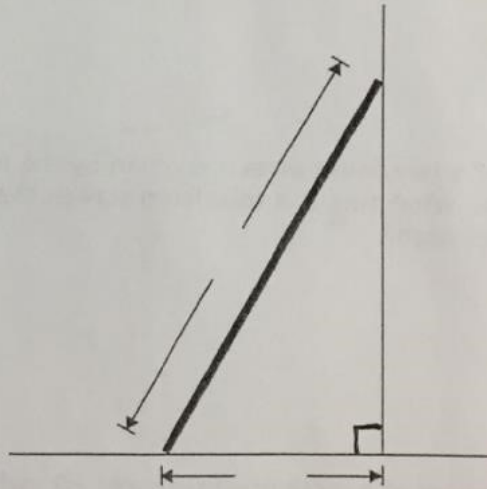
Student Worksheet #2

- 6) A disabled ship radios to shore for help. The Coast Guard determines that the ship is 16 miles east and 43 miles north of the station. What is the direct distance between the ship and the Coast Guard station? Round answer to the nearest whole number.

- 7) Find the missing side of the triangle.



- 8) Tara leaned a 17 foot ladder against the house. The bottom of the ladder is 8 feet from the house. How high up the side of the house is the top of the ladder?

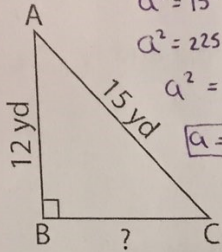


ne: _____ Score: _____

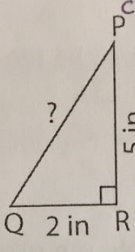
Pythagorean Theorem

Sheet 1

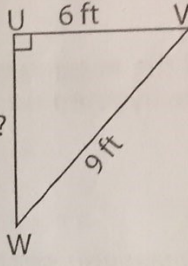
Determine the missing length in each right triangle using the Pythagorean theorem. Round the answer to the nearest tenth.

1)  $a^2 = c^2 - b^2$
 $a^2 = 15^2 - 12^2$
 $a^2 = 225 - 144$
 $a^2 = 81$
 $a = 9$

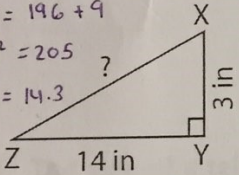
BC = 9 yd

2)  $c^2 = a^2 + b^2$
 $c^2 = 2^2 + 5^2$
 $c^2 = 4 + 25$
 $c^2 = 29$
 $c = 5.4$

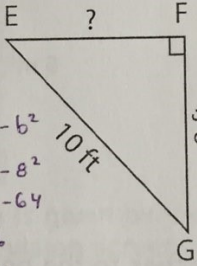
PQ = 5.4 in

3)  $a^2 = c^2 - b^2$
 $a^2 = 9^2 - 6^2$
 $a^2 = 81 - 36$
 $a^2 = 45$
 $a = 6.7$

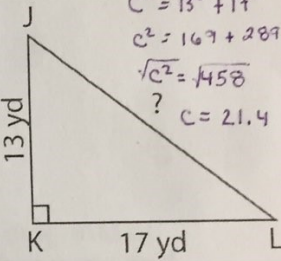
UW = 6.7 ft

4)  $c^2 = a^2 + b^2$
 $c^2 = 14^2 + 3^2$
 $c^2 = 196 + 9$
 $c^2 = 205$
 $c = 14.3$

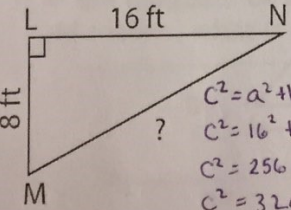
XZ = 14.3 in

5)  $a^2 = c^2 - b^2$
 $a^2 = 10^2 - 8^2$
 $a^2 = 100 - 64$
 $a^2 = 36$
 $a = 6$

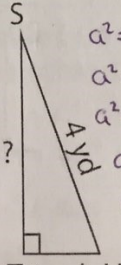
EF = 6 ft

6)  $c^2 = a^2 + b^2$
 $c^2 = 13^2 + 17^2$
 $c^2 = 169 + 289$
 $\sqrt{c^2} = \sqrt{458}$
 $c = 21.4$

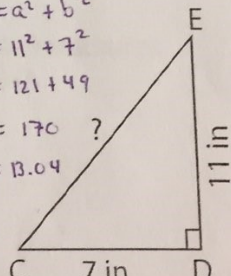
JL = 21.4 yd

7)  $c^2 = a^2 + b^2$
 $c^2 = 16^2 + 8^2$
 $c^2 = 256 + 64$
 $c^2 = 320$
 $c = 17.9$

MN = 17.9 ft

8)  $a^2 = c^2 - b^2$
 $a^2 = 4^2 - 1^2$
 $a^2 = 16 - 1$
 $a^2 = 15$
 $a = 3.87$

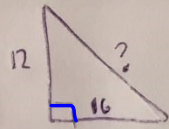
ST = 3.87 yd

9)  $c^2 = a^2 + b^2$
 $c^2 = 11^2 + 7^2$
 $c^2 = 121 + 49$
 $c^2 = 170$
 $c = 13.04$

CE = 13 in

Lesson 2: Pythagorean Theorem

- 1) If one leg of a right triangle is 12 and the other leg is 16, what is the length of the hypotenuse in this right triangle?



$$c^2 = a^2 + b^2$$

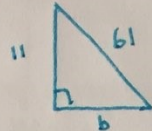
$$c^2 = 16^2 + 12^2$$

$$c^2 = 256 + 144$$

$$c^2 = 400$$

$$c = 20$$

- 2) Find the missing measure if a and b are the legs of the right triangle and c is the hypotenuse, with $a = 11$ and $c = 61$.



$$b^2 = c^2 - a^2$$

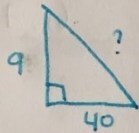
$$b^2 = 61^2 - 11^2$$

$$b^2 = 3721 - 121$$

$$b^2 = 3600$$

$$b = 60$$

- 3) The measures of three sides of a triangle are given. Determine whether a triangle with sides 9, 40 and 41 is a right triangle. Explain your answer.



$$c^2 = a^2 + b^2$$

$$c^2 = 9^2 + 40^2$$

$$c^2 = 81 + 1600$$

$$c^2 = 1681$$

$$c = 41$$

Yes it is a right angle triangle

- 4) Find the missing side of the triangle.

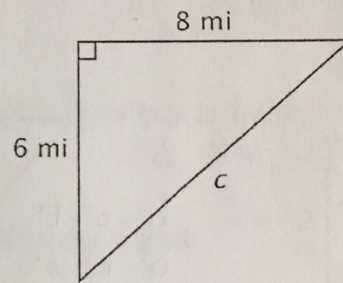
$$c^2 = a^2 + b^2$$

$$c^2 = 8^2 + b^2$$

$$c^2 = 64 + 36$$

$$c^2 = 100$$

$$c = 10 \text{ mi}$$



A telephone pole support cable attaches to the pole 20 feet high. If the cable is 25 feet long, how far from the bottom of the pole does the cable attach to the ground?

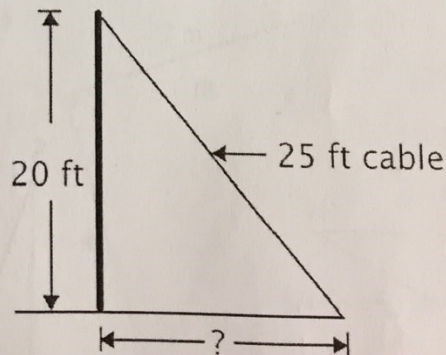
$$b^2 = c^2 - a^2$$

$$b^2 = 25^2 - 20^2$$

$$b^2 = 625 - 400$$

$$b^2 = 225$$

$$b = 15 \text{ ft}$$



$$1^2 = 1 \times 1 = 1 \quad) + 3$$

$$2^2 = 2 \times 2 = 4 \quad \nearrow + 5$$

$$3^2 = 3 \times 3 = 9 \quad) + 7$$

$$16 \quad) + 9$$

$$25$$

Elementary School Lesson

How to do math
without a calculator!!!!

Adding

$$\begin{array}{r} \overset{1}{3} \overset{1}{6} 5 \\ + 487 \\ \hline 852 \end{array}$$

$$\begin{array}{r} 365 \\ + 487 \\ \hline 742 \\ 11 \\ \hline 852 \end{array}$$

$$\begin{array}{r} \underline{\underline{3}} \underline{\underline{6}} 5 \\ + \underline{\underline{4}} \underline{\underline{8}} 7 \\ \hline \end{array}$$

$300 + 400 = 700$
 $60 + 80 = 140$
 $5 + 7 = 12$

$$\begin{array}{r} 12 \\ \hline 852 \end{array}$$

Multiplying

$$\begin{array}{r} \overset{1}{14} \\ \times 14 \\ \hline 56 \\ 140 \\ \hline 196 \end{array}$$

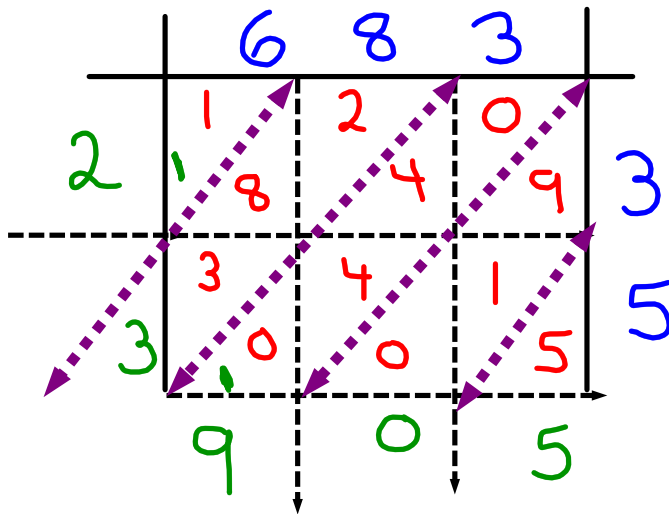
The diagram shows a multiplication problem with handwritten annotations. The numbers 14 and 14 are written in red. A red horizontal line is drawn below the second 14. A purple '1' is written above the top 14. A green arrow points from the 4 in the bottom 14 to the 4 in the top 14. A purple arrow points from the 4 in the bottom 14 to the 4 in the top 14. The product 56 is written in purple below the red line. The product 140 is written in green below the purple 56. A green horizontal line is drawn below the 140. The final product 196 is written in green below the green line.

$$52 \times 63$$

	<u>50</u>	2
<u>60</u>	<u>3000</u>	120
3	150	6

$$\begin{array}{r}
 3000 \\
 + 120 \\
 \hline
 150 \\
 6 \\
 \hline
 3276
 \end{array}$$

$$683 \times 35 = 23905$$



$$18^2 = 18 \times 18$$

Dividing

$$567 \div 9$$

$$\begin{array}{r}
 \overset{6}{} \overset{3}{} \\
 9 \overline{) 567} \\
 \underline{54} \\
 27 \\
 \underline{27} \\
 0
 \end{array}$$

$$639 \div 5$$

$$\begin{array}{r}
 \overset{1}{} \overset{2}{} \overset{7}{} \overset{8}{} \\
 5 \overline{) 639.0} \\
 \underline{5} \\
 13 \\
 \underline{10} \\
 39 \\
 \underline{35} \\
 40 \\
 \underline{40} \\
 0
 \end{array}$$

Mid Unit Review

Page: 21

Questions:

2acd,3abcd,4ac,5,6,7, 8ab,9,10, 11ace

Pythagorean Theorem Answers

1) 8.1 2) 5.2 3) 13.8 4) 12.7

5) 11.8 6) 3.5 7) No 8) Yes

9) No 10) Yes 11) 5.6 12) 8.8

13) 1.9 14) 10.1

Name : _____

Score : _____

Teacher : _____

Date : _____

3)

$$\begin{array}{r} 991 \\ + 379 \\ \hline \end{array}$$

$$\begin{array}{r} 484 \\ + 780 \\ \hline \end{array}$$

$$\begin{array}{r} 452 \\ + 385 \\ \hline \end{array}$$

$$\begin{array}{r} 906 \\ + 321 \\ \hline \end{array}$$

$$\begin{array}{r} 753 \\ + 988 \\ \hline \end{array}$$

$$\begin{array}{r} 115 \\ + 969 \\ \hline \end{array}$$

$$\begin{array}{r} 216 \\ - 116 \\ \hline \end{array}$$

$$\begin{array}{r} 419 \\ - 402 \\ \hline \end{array}$$

$$\begin{array}{r} 931 \\ - 567 \\ \hline \end{array}$$

$$\begin{array}{r} 751 \\ - 438 \\ \hline \end{array}$$

$$\begin{array}{r} 694 \\ - 397 \\ \hline \end{array}$$

$$\begin{array}{r} 619 \\ - 580 \\ \hline \end{array}$$

$$\begin{array}{r} 154 \\ \times 35 \\ \hline \end{array}$$

$$\begin{array}{r} 771 \\ \times 12 \\ \hline \end{array}$$

$$\begin{array}{r} 748 \\ \times 37 \\ \hline \end{array}$$

$$\begin{array}{r} 409 \\ \times 79 \\ \hline \end{array}$$

$$\begin{array}{r} 211 \\ \times 97 \\ \hline \end{array}$$

$$\begin{array}{r} 904 \\ \times 32 \\ \hline \end{array}$$

$$7 \overline{)8122}$$

$$7 \overline{)2856}$$

$$5 \overline{)6275}$$

$$2 \overline{)7832}$$

$$3 \overline{)7165}$$

$$8 \overline{)2340}$$



Time : _____ Score : _____
 Teacher : _____ Date : _____

$$\begin{array}{r} 991 \\ + 379 \\ \hline 1,370 \end{array}$$

$$\begin{array}{r} 484 \\ + 780 \\ \hline 1,264 \end{array}$$

$$\begin{array}{r} 452 \\ + 385 \\ \hline 837 \end{array}$$

$$\begin{array}{r} 906 \\ + 321 \\ \hline 1,227 \end{array}$$

$$\begin{array}{r} 753 \\ + 988 \\ \hline 1,741 \end{array}$$

$$\begin{array}{r} 115 \\ + 969 \\ \hline 1,084 \end{array}$$

$$\begin{array}{r} 216 \\ - 116 \\ \hline 100 \end{array}$$

$$\begin{array}{r} 419 \\ - 402 \\ \hline 17 \end{array}$$

$$\begin{array}{r} 931 \\ - 567 \\ \hline 364 \end{array}$$

$$\begin{array}{r} 751 \\ - 438 \\ \hline 313 \end{array}$$

$$\begin{array}{r} 694 \\ - 397 \\ \hline 297 \end{array}$$

$$\begin{array}{r} 619 \\ - 580 \\ \hline 39 \end{array}$$

$$\begin{array}{r} 154 \\ \times 35 \\ \hline 5,390 \end{array}$$

$$\begin{array}{r} 771 \\ \times 12 \\ \hline 9,252 \end{array}$$

$$\begin{array}{r} 748 \\ \times 37 \\ \hline 27,676 \end{array}$$

$$\begin{array}{r} 409 \\ \times 79 \\ \hline 32,311 \end{array}$$

$$\begin{array}{r} 211 \\ \times 97 \\ \hline 20,467 \end{array}$$

$$\begin{array}{r} 904 \\ \times 32 \\ \hline 28,928 \end{array}$$

$$\begin{array}{r} 1160r2 \\ 7 \overline{)8122} \end{array}$$

$$\begin{array}{r} 408 \\ 7 \overline{)2856} \end{array}$$

$$\begin{array}{r} 1255 \\ 5 \overline{)6275} \end{array}$$

$$\begin{array}{r} 3916 \\ 2 \overline{)7832} \end{array}$$

$$\begin{array}{r} 2388r1 \\ 3 \overline{)7165} \end{array}$$

$$\begin{array}{r} 292r4 \\ 8 \overline{)2340} \end{array}$$



$$567 \div 9$$

$$\begin{array}{r}
 \overline{) 567} \\
 \underline{54} \\
 27 \\
 \underline{27} \\
 0
 \end{array}$$

63

$$639 \div 5$$

$$\begin{array}{r}
 \overline{) 639.0} \\
 \underline{5} \\
 13 \\
 \underline{10} \\
 39 \\
 \underline{35} \\
 40 \\
 \underline{40} \\
 0
 \end{array}$$

127.8

Name : _____ Score : _____

Teacher : _____ Date : _____

$$\begin{array}{r} 936 \\ + 441 \\ \hline \end{array}$$

$$\begin{array}{r} 769 \\ + 194 \\ \hline \end{array}$$

$$\begin{array}{r} 191 \\ + 153 \\ \hline \end{array}$$

$$\begin{array}{r} 888 \\ + 284 \\ \hline \end{array}$$

$$\begin{array}{r} 782 \\ + 975 \\ \hline \end{array}$$

$$\begin{array}{r} 381 \\ + 466 \\ \hline \end{array}$$

$$\begin{array}{r} 509 \\ - 426 \\ \hline \end{array}$$

$$\begin{array}{r} 701 \\ - 247 \\ \hline \end{array}$$

$$\begin{array}{r} 940 \\ - 203 \\ \hline \end{array}$$

$$\begin{array}{r} 757 \\ - 315 \\ \hline \end{array}$$

$$\begin{array}{r} 944 \\ - 116 \\ \hline \end{array}$$

$$\begin{array}{r} 794 \\ - 502 \\ \hline \end{array}$$

$$\begin{array}{r} 151 \\ \times 91 \\ \hline \end{array}$$

$$\begin{array}{r} 320 \\ \times 17 \\ \hline \end{array}$$

$$\begin{array}{r} 552 \\ \times 83 \\ \hline \end{array}$$

$$\begin{array}{r} 412 \\ \times 70 \\ \hline \end{array}$$

$$\begin{array}{r} 925 \\ \times 49 \\ \hline \end{array}$$

$$\begin{array}{r} 205 \\ \times 20 \\ \hline \end{array}$$

$$4 \overline{)8698}$$

$$7 \overline{)3250}$$

$$7 \overline{)6595}$$

$$9 \overline{)7758}$$

$$7 \overline{)7693}$$

$$4 \overline{)3416}$$

Name : _____ Score : _____

Teacher : _____ Date : _____

$\begin{array}{r} 1,115 \\ + 4,172 \\ \hline \end{array}$	$\begin{array}{r} 7,141 \\ + 4,691 \\ \hline \end{array}$	$\begin{array}{r} 3,464 \\ + 1,905 \\ \hline \end{array}$	$\begin{array}{r} 3,913 \\ + 7,513 \\ \hline \end{array}$	$\begin{array}{r} 7,652 \\ + 6,417 \\ \hline \end{array}$	$\begin{array}{r} 3,739 \\ + 8,920 \\ \hline \end{array}$
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$\begin{array}{r} 886 \\ - 867 \\ \hline \end{array}$	$\begin{array}{r} 500 \\ - 374 \\ \hline \end{array}$	$\begin{array}{r} 766 \\ - 313 \\ \hline \end{array}$	$\begin{array}{r} 558 \\ - 490 \\ \hline \end{array}$	$\begin{array}{r} 439 \\ - 351 \\ \hline \end{array}$	$\begin{array}{r} 282 \\ - 150 \\ \hline \end{array}$
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$\begin{array}{r} 251 \\ \times 28 \\ \hline \end{array}$	$\begin{array}{r} 122 \\ \times 13 \\ \hline \end{array}$	$\begin{array}{r} 188 \\ \times 51 \\ \hline \end{array}$	$\begin{array}{r} 266 \\ \times 15 \\ \hline \end{array}$	$\begin{array}{r} 949 \\ \times 68 \\ \hline \end{array}$	$\begin{array}{r} 380 \\ \times 44 \\ \hline \end{array}$
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$$11 \overline{)91}$$

$$11 \overline{)82}$$

$$10 \overline{)94}$$

$$29 \overline{)99}$$

$$10 \overline{)81}$$

$$10 \overline{)99}$$

