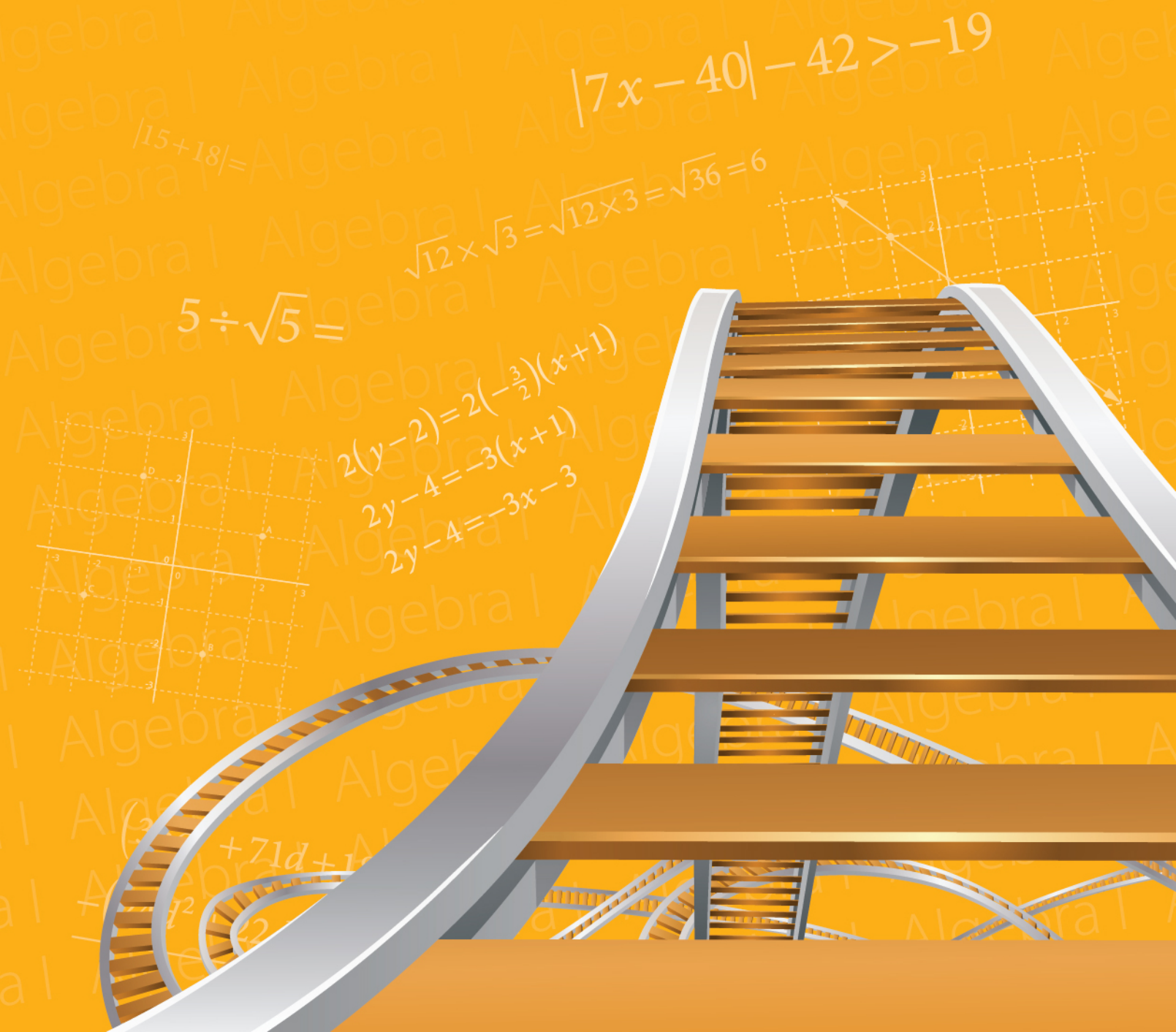
Horizons

Algebra I

Tests and Resources



1 Solve, using the rules for signed numbers. **8 POINTS**

$(-438) + (+172) =$

$(-351) - (-683) =$

$(+378) + (-937) =$

$(-249) - (+534) =$

$(-15)(80) =$

$(108) \div (-18) =$

$(-25)(-12) =$

$(-132) \div (-11) =$

2 Simplify the expressions. You do not have to solve exponents greater than 3. **12 POINTS**

$46^0 =$

$37^1 =$

$14^3 \times 14^7 =$

$11^9 \div 11^7 =$

$(15 \div 3)^2 =$

$5^{-3} =$

$16^5 \times 16^8 =$

$10^{16} \div 10^{13} =$

$(2 \times 4)^3 =$

$13^{-2} =$

$\left(\frac{2}{3}\right)^3 =$

$\left(\frac{5}{2}\right)^{-3} =$

3 Simplify each expression, following the proper order of operations. **8 POINTS**

$45 - 5 \times 4 =$

$26 \div 13 \times 3 + 8 - 3 \times 4 =$

$(14 - 11)^2 - 45 \div 9 =$

$(9 + 16) - 5^2 + 4 \times 7 =$

$(25 - 21)^3 - 6^2 + 14 \div 7 =$

$2^3 \times 5 \div (13 - 5) - 7 =$

$(6^2 - (28 - 13) + 3) \div 6 =$

$((2 + 4 \times 7) \div 6)^3 =$

1 Solve. Express the solution as a coordinate point. **8 POINTS**

$x - y + 11 = 0$
$-2x + y - 15 = 0$

$10x - 3y - 24 = 0$
$7x + 2y - 25 = 0$

$11x + 22y + 44 = 0$
$-x - 4y - 14 = 0$

$5x - 2y - 7 = 0$
$10x - 4y - 14 = 0$

2 Solve the systems of equations by graphing. Express the solution as a coordinate point. **6 POINTS**

$2x + y - 4 = 0$
$x + 2y - 5 = 0$

$3x + 2y + 4 = 0$
$2x + 3y + 1 = 0$

$-3x + y - 4 = 0$
$4x + y + 10 = 0$

3 Multiply. **15 POINTS**

$4x(x - 7)$

$8x(7x - 4)$

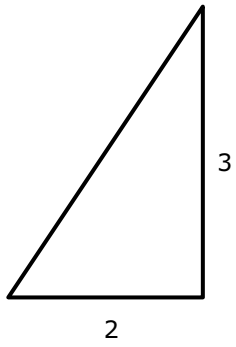
$3x(2x - 9)$

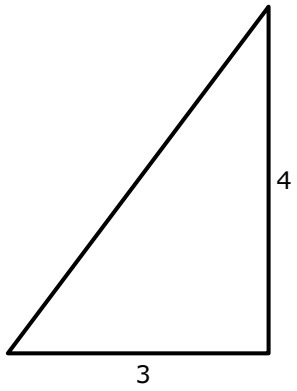
$6x(5x^2 - 3x + 4)$

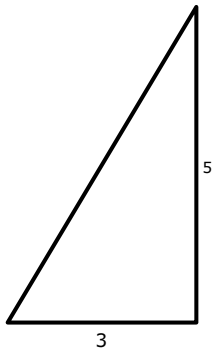
$5x(3x^2 + 2x - 4)$

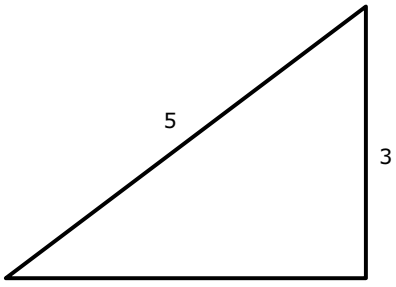
$7x(2x^2 - 9x + 6)$

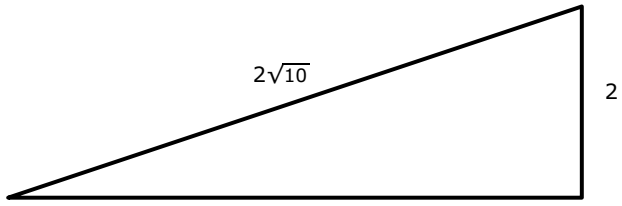
1 Find the length of the missing sides in each right triangle below. **7 POINTS**

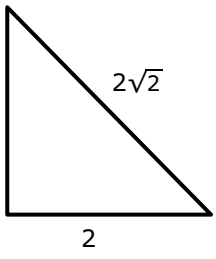


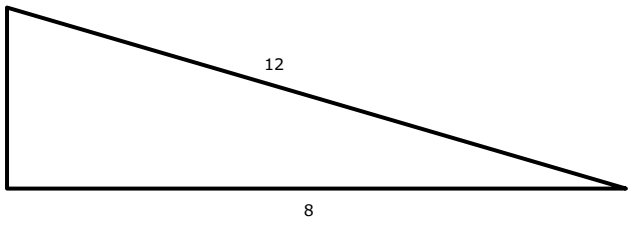












Exam 2

1 Solve, using the rules for signed numbers. **4 POINTS**

$(+275) + (-736) =$

$(-11)(800) =$

$(-167) - (+526) =$

$(264) \div (-33) =$

2 Simplify the expressions. You do not have to solve exponents greater than 3. **9 POINTS**

$\left(42 \div 6\right)^2 =$

$10^{32} \div 10^{29} =$

$\left(\frac{5}{4}\right)^{-3} =$

$6^{-3} =$

$12^{-2} =$

$54^0 =$

$23^5 \times 23^{12} =$

$\left(\frac{2}{5}\right)^3 =$

$\left(12 \div 4\right)^3 =$

3 Simplify each expression, following the proper order of operations. **2 POINTS**

$2^3 \times 5 \div \left(22 - 17\right) - 9 =$

$\left(6^2 - \left(36 - 22\right) + 6\right) \div 7 =$

4 Solve, using the rules of absolute values. **6 POINTS**

$\left|47\right| + \left|-119\right| =$

$-\left|33\right| + \left|-82\right| =$

$-\left|141 - 72\right| + \left|98 - 57\right| =$

$\left|51\right| - \left|-78\right| =$

$-\left|-178\right| - \left|-199\right| =$

$-\left|265 + 133\right| - \left|444 - 217\right| =$

5 Solve the following roots. **6 POINTS**

$\sqrt{33} + \sqrt{33} =$

$\left(\sqrt{8}\right)\left(\sqrt{2}\right) =$

$22\sqrt[3]{49} - 15\sqrt[3]{49} =$

$51\sqrt[3]{54} \div 3\sqrt[3]{2} =$

$\left(5\sqrt{12}\right)\left(6\sqrt{2}\right) =$

$20 \div \sqrt{5} =$

6 Translate the following words into a mathematical expression. **6 POINTS**

The quotient of a number and 6

The product of 14 and a number

45 less than a number

The ratio of a number to 7

A number less than 125

A number increased by 87

7 Evaluate each algebraic expression. **2 POINTS**

$7b - 5$ for $b = -3$

$2r^2 - 3r + 6$ for $r = -2$

8 Solve. **6 POINTS**

$$\begin{array}{r} 9x^2+4x+7 \\ +\ 3x^2+5x+2 \\ \hline \end{array} \qquad \begin{array}{r} 6x^2+5x+4 \\ +3x^2-3x-7 \\ \hline \end{array} \qquad \begin{array}{r} 2x^2\quad +6 \\ +6x^2+3x-4 \\ \hline \end{array}$$

$$\begin{array}{r} \left(7x^2+4x+5\right) \\ -\left(3x^2+2x+2\right) \\ \hline \end{array} \qquad \begin{array}{r} \left(6x^2-2x+7\right) \\ -\left(x^2-5x\right) \\ \hline \end{array} \qquad \begin{array}{r} \left(4x^2\quad -5\right) \\ -\left(6x^2-8x-5\right) \\ \hline \end{array}$$

9 Solve. **8 POINTS**

$5a^3\left(7ab^2\right) =$

$23e^3 \div e =$

$4c^2\left(9c^2d^2\right) =$

$54f^5g^4 \div 9f^2g^3 =$

$54^{\frac{1}{3}} =$

$75^{\frac{1}{2}} =$

$72^{\frac{1}{2}} =$

$24^{\frac{1}{3}} =$

10 Solve each algebraic equation. Identify the property of equality used in each step. **9 POINTS**

$11x-5=7x+19$

$8\left(x+2\right)=5x+43$

11 Solve each algebraic equation. **2 POINTS**

$\frac{8}{x}+\frac{7}{x^2}=\frac{5}{x}+\frac{25}{x^2}$

$\frac{1}{8}x-0.5=2$

12 Solve. **2 POINTS**

$\sqrt{21}\left(5+\sqrt{3}\right) =$

$\left(4\sqrt{24}+3\sqrt{32}\right)\div\sqrt{2} =$

13 Solve and check. Identify any extraneous solutions. **6 POINTS**

$\sqrt{6x+25}+43=36$

$|3x-7|-5=-4x+9$

14 Find the slope of the line joining the points. **3 POINTS**

(8, 4) and (8, -6)

(5, -3) and (-7, -3)

(7, -3) and (-5, 6)

15 Write the point-slope form and the slope-intercept form of the equation of a line. **4 POINTS**

m = 2; (5, 4)

m = -3; (2, -7)

16 Identify whether the two lines are parallel, perpendicular, or neither and tell why. **6 POINTS**

$y=\frac{3}{5}x-4$
$y=-\frac{3}{5}x+2$

$y=\frac{3}{5}x-4$
$y=\frac{3}{5}x+2$

$y=\frac{3}{5}x-4$
$y=-\frac{5}{3}x+2$

17 Solve. **3 POINTS**

$|7x|<x+24$

$|3x+8|+6<1$

$|7x+1|+6>2$

18 Solve. Express the answer as a coordinate point. **3 POINTS**

$-3x - y - 14 = 0$
$3x + 2y + 10 = 0$

$-x - 3y + 18 = 0$
$x - 2y + 17 = 0$

$-3x + y + 14 = 0$
$4x + y - 14 = 0$

19 Solve. **4 POINTS**

$(3x - 5)^2$

$(3x + 2)(x^2 - 4x - 1)$

$(3x^2 - 26x + 48) \div (3x - 8)$

$(27x - 45) \div 9$

20 Factor Completely. **6 POINTS**

$6x^2 - 12x + 15$

$2x^3 - 18x$

$x^3 + 64$

$16x^2 - 72x + 81$

$4x + 10xy + 25y + 10$

$25x^2 - 2$

97 POINTS TOTAL

1 Identify each number as *natural*, *whole*, *integer*, *rational*, *irrational*, or *real*. Some numbers may have more than one answer.

	$4\sqrt{11}$	-3	π	0	$1\frac{2}{3}$	$\frac{13}{7}$	65	$\frac{1}{8}$	41.3
Natural									
Whole									
Integer									
Rational									
Irrational									
Real									

2 Solve, using the rules for signed numbers.

(+48) + (+35) =

(-48) + (+35) =

(-48) + (-35) =

(+48) + (-35) =

(+48) – (-35) =

(-48) – (-35) =

(11)(12) =

(11)(-12) =

(-132) ÷ (11) =

(-132)÷(-12) =

3 Write the following exponential expressions in expanded form and solve.

3^4 =

4^3 =

6^3 =

10^4 =

11^2 =

Worksheet 15

1 Complete the chart to find 5 possible solutions for each equation. Draw the graph of each equation.

$y = -x + 1$

x	y
0	
1	
2	
-1	
-2	

$y = 2x - 1$

x	y
0	
1	
2	
-1	
-2	

$y = 2(x + 1)$

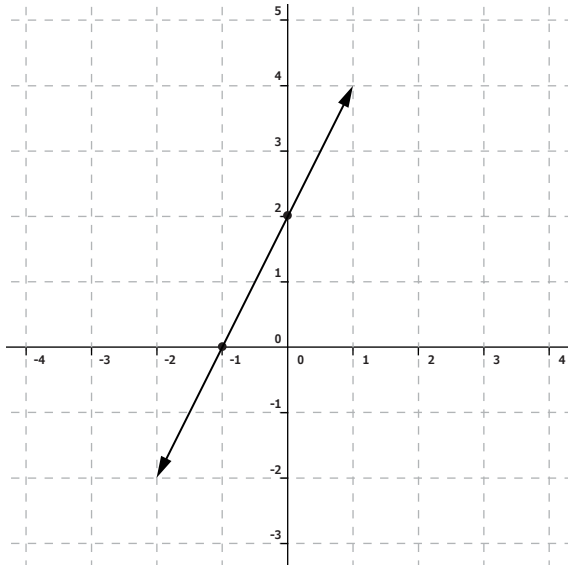
x	y
0	
1	
2	
-1	
-2	

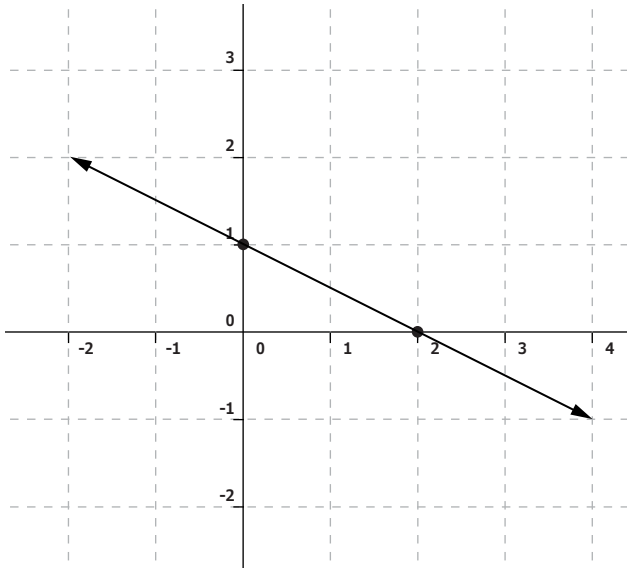
$y = 2(x - 1) + 1$

x	y
0	
1	
2	
-1	
-2	

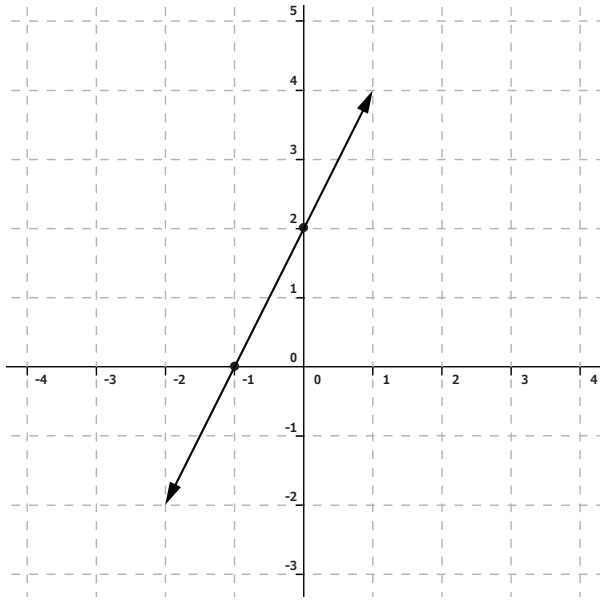
Worksheet 21

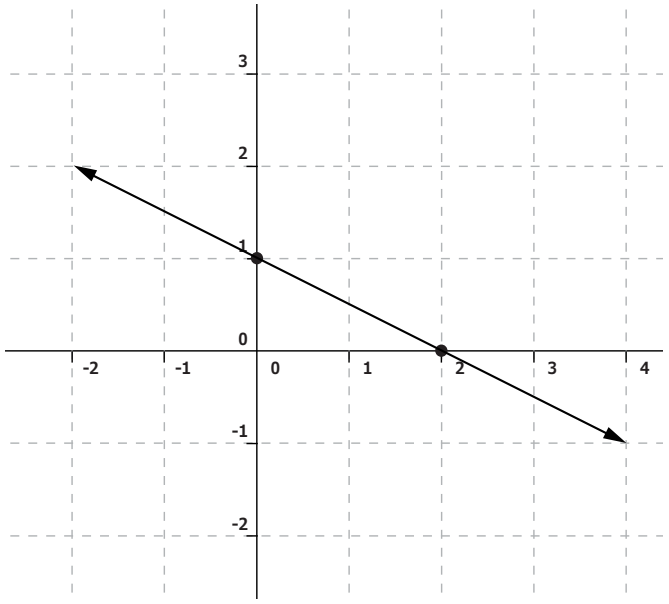
1 Write an equation of the graph in slope-intercept form.



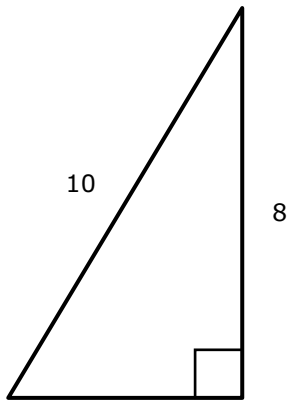


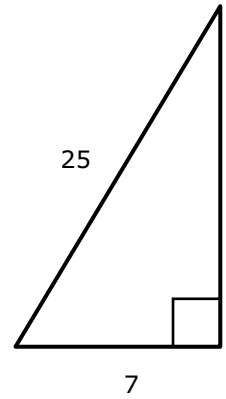
2 Write an equation of the graph in point-slope form. Convert each equation to standard form.

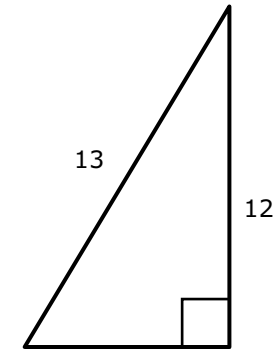




1 Find the length of the missing sides.







2 Find the length of each segment.