



**NEW ENGLAND  
COMMON ASSESSMENT PROGRAM**

**Student Work Samples   
2010**

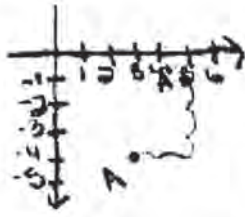
**Grade 8**



# Mathematics



11



$$A: (3, -4)$$
$$A': (5, -1)$$



11



$(-1, 5)$



11

$(3, -1)$  and  $(5, -1)$  including  
 $(3, -4)$

12

$$\begin{aligned} 160 \div 2 &= 80 \\ 400 \div 5 &= 80 \\ 960 \div 12 &= 80 \\ 1200 \div 15 &= 80 \end{aligned}$$

80 steps per minute

12

80 steps/minute

12

The pattern is plus 3 then plus 7 then plus three

$$2+3=5 \quad 5+7=12 \quad 12+3=15$$

13

A) the next number is  $d$

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B) divide by  $d$ , then subtract 1

13 a. The next number is 2.

b. The pattern is  $\frac{x}{2} - 1$ .

$x$  = the # before

13

a. 2

b You subtract the second number from the first to find out how much the pattern is taking away, each time.

13

$$a.) n \div 2 - 1$$

b. take the number and divide by two then minus one.

13

a. 1

b. You divide by two and subtract two.

13

$$a) -2$$

$$b) -8 \text{ (Subtract 8)}$$



14

a.) a circle graph is not a good graph for Nicole's project because there won't be enough room for everything so it will look confusing.

b.) What do you use the computer for most?



14

- A A circle graph will not be a good way to show all her data because she will have tons of data from each person and won't have enough room.
- B What is one way that you can use a computer



14

A) Well with the question it would be hard to organize all those answers in a circle graph.

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B) What ways could you use a computer?



14

a. people may say more than other people do.

b. What is the one thing you mostly use a computer for?



14

a. The circle graph is a bad idea because it won't show you what you need it would be better to use a bar graph.

b. Ways people use the computer.



14

④ A circle graph is not a good graph to use Cause some people Don't know how to read a circle graph.

③ What are all the ways to know how to use a computer?



15

$$\frac{1}{8} \times \frac{12}{1} = \frac{12}{8}$$

$$\frac{12}{8} = \frac{3}{2} = 1\frac{1}{2}$$

Aidan skated  
1 and  $\frac{1}{2}$   
miles.

A.)

$$1\frac{4}{8} = 1\frac{1}{2}$$

showing my work

Aidan skated 20 laps

B.) 12 laps =  $1\frac{1}{2}$  miles  
1 lap =  $\frac{1}{8}$  mile  $\rightarrow$

$$1 + \frac{1}{2} = 2\frac{1}{2} \rightarrow \frac{12}{8} = 1\frac{1}{2}$$

$$\frac{1}{8} \times \frac{8}{1} = 1$$

(20)

C.)

work

$$M + T = 40$$

$$M = \frac{3}{5} \quad T = \frac{2}{5}$$

$$5 \overline{)40}^8$$

Aidan skated  
3 miles on  
Monday.

$$M = 8 + 8 + 8 \quad T = 8 + 8$$

$$M = 24 \quad T = 16$$

$$3 \frac{24}{1} \times \frac{1}{8} = 3$$



15

$$a) \frac{1}{8} \cdot \frac{12}{1} = \frac{12}{8} = \frac{3}{2} = 1\frac{1}{2} = 1.5$$

He skated 1.5 miles

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$$b) \frac{1}{8} \cdot \frac{20}{1} = \frac{20}{8} = \frac{5}{2} = 2\frac{1}{2} = 2.5$$

He skated 20 laps

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$$c) \frac{3}{5} \cdot \frac{40}{1} = \frac{120}{5} = \frac{24}{1} \text{ He skated 24 laps on Monday}$$

$$\frac{1}{8} \cdot \frac{24}{1} = \frac{24}{8} = 3$$

He skated 3 miles Monday



15

a. 1 lap =  $\frac{1}{8}$  mile. 1 mile = 8 laps  
12 laps is equal to  $1\frac{1}{2}$  miles. 1 mile is  
8 laps and  $\frac{1}{2}$  mile is 4 laps  $8+4=12$ .

b. Since 1 mile = 8 laps, If Aidan Skated  $2\frac{1}{2}$  miles  
than he skated 20 laps 2 miles is 16 laps +  $\frac{1}{2}$  mile  
(4 laps).

c.  $\frac{2}{5}$  of 40 is 16. 16 laps = 2 miles,  $40-16=$   
24. 24 is the number of laps he skated  
on Monday. 24 laps = 3 miles. Aidan Skated  
3 miles on Monday.



15

$$\textcircled{A} \frac{1}{8} \cdot \frac{12}{1} = \frac{12}{8} = \frac{6}{4} = \frac{3}{2} = 1\frac{1}{2} \text{ miles}$$

$$\textcircled{B} 2\frac{1}{2} = \frac{5}{2} \cdot \frac{8}{1} = \frac{40}{2} = 20 \text{ laps}$$

$$\textcircled{C} \frac{40}{1} \cdot \frac{2}{5} = \frac{80}{5} = \frac{16}{1}$$

Tuesday 18 laps      Monday 22 laps

$$\frac{22}{1} \cdot \frac{1}{8} = \frac{22}{8} = 2\frac{3}{4} \text{ miles on Monday}$$

$$\begin{array}{r} 8 \overline{) 22} \\ \underline{16} \phantom{0} \\ 6 \phantom{0} \\ \underline{4} \phantom{0} \\ 2 \phantom{0} \\ \underline{16} \phantom{0} \\ 4 \phantom{0} \\ \underline{4} \phantom{0} \\ 0 \end{array} \begin{array}{l} 2. \\ .5 \\ .25 \\ .05 \\ 2.75 \end{array}$$



15

a) A mile and a half

$$b) 1 = \frac{8}{8} \quad \frac{8}{8} + \frac{8}{8} + \frac{4}{8} = \frac{20}{8} = 20 \text{ laps}$$

c) 3 miles



A)  $12 \text{ laps} = \frac{1}{8} \text{ mile each} = \frac{12}{8} = 1\frac{5}{8} \text{ miles}$

15

B)  $2\frac{1}{2} \text{ miles} = 2\frac{4}{8} = \frac{20}{8} = 20 \text{ laps}$

$2\frac{1}{2}$  miles is equal to  $2\frac{4}{8}$  miles. 2 times 8 is 16 plus 4 is 20. If each lap is  $\frac{1}{8}$  of a mile then he skated 20 laps.

C)  $40 \div 5 = 8 \times 2 = 16 = \frac{2}{5}$  (Tuesday)      $40 - 16 = 24 = \frac{3}{5}$  (Monday)

40 divided by 5 equals 8. 8 times 2 equals 16 or  $\frac{2}{5}$  of 40. If Aidan skated  $\frac{2}{5}$  on Tuesday, then he skated  $\frac{3}{5}$  on Monday. 40 minus 16 ( $\frac{2}{5}$ ) equals 24 ( $\frac{3}{5}$ ). Aidan skated 24 laps on Monday.



15

a. ☺ = 1 lap

☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺
$\frac{1}{8}$	$\frac{2}{8}$	$\frac{3}{8}$	$\frac{4}{8}$	$\frac{5}{8}$	$\frac{6}{8}$	$\frac{7}{8}$	$\frac{8}{8}$	$1\frac{1}{8}$	$1\frac{2}{8}$	$1\frac{3}{8}$	$1\frac{4}{8}$	$1\frac{5}{8}$

On Saturday Aiden skated  $1\frac{4}{8}$  of a mile.

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b.

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

$1\frac{4}{8}$  miles.      ⑳  $2\frac{3}{8}$       ㉑  $2\frac{4}{8}$       Aiden skated 21 laps.

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c. On Monday, Aiden skated 22 laps.



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A:)  $\frac{12}{8}$

$$\begin{array}{r} 1.5 \\ 8 \overline{) 12.0} \\ \underline{8} \phantom{0} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

1.5 miles

B:) 6 laps = .5 miles 18 laps

12 laps = 1.5 miles

18 laps = 2.5 miles

24 = 3.5

30 = 4.5

36 = 5.5

42 = 6.5

C:)  $\frac{2}{5}$

$$\begin{array}{r} 25 \\ 2 \overline{) 51} \\ \underline{40} \\ 10 \\ \underline{10} \\ 0 \end{array}$$

25%

6 miles



15

A.  $\frac{1}{8} \times 12 = \frac{12}{20}$ . Aidan has skated a distance of  $\frac{12}{20}$  miles, in simplest form though it would be  $\frac{12}{20} \div \frac{2}{2} = \frac{6}{10} \div \frac{2}{2} = \frac{3}{5}$  miles. So Aidan skated  $\frac{3}{5}$  miles on Saturday.

B.  $2\frac{1}{12} \times 2 = \frac{12}{144} \div \frac{2}{2} = \frac{6}{22} \div \frac{2}{2} = \frac{3}{11} = 2\frac{3}{11}$ , so on Sunday Aidan skated  $2\frac{3}{11}$  miles.

C.  $\frac{1}{8} \times 40 = \frac{40}{32} \div \frac{2}{2} = \frac{20}{6} \div \frac{2}{2} = \frac{10}{3}$  so on Monday Aidan must have skated  $\frac{10}{3}$  miles.