Michigan Educational Assessment Program

RELEASED ITEMS

MATHEMATICS
GRADE 7

Fall 2007

1 Divide $7\frac{2}{9} \div 3\frac{1}{3}$

A $2\frac{1}{6}$

B $4\frac{1}{6}$

C $21\frac{2}{27}$

D $21\frac{3}{12}$

2 x and ÷ any two fractions, including mixed numbers

A correct

B added numerators, added denominators

C cross multiplied, put in numerator/denominator

D incorrect numerator, correct denominator

3 Divide $\frac{3}{5} \div \frac{7}{8}$

A $\frac{21}{40}$

B $\frac{24}{35}$

C $1\frac{11}{24}$

D $1\frac{19}{21}$

4 Compute with positive rational numbers

A added one given number to two with decimals moved

B added two given numbers to one with decimal moved

C correct

D changed decimals to wholes, then added

5 Divide $6 \div \frac{1}{4}$

A $\frac{2}{3}$

B $1\frac{1}{2}$

C $6\frac{1}{4}$

D 24

6 Compute with positive rational numbers

A incorrect fraction conversion

B correct

C converted fractions correctly, subtracted wrong direction

D subtracted wholes, added numerators, denominators

7 Which of the following has the same value as $\frac{4}{5} \times \frac{3}{2}$?

A $\frac{4}{5} \div \frac{3}{2}$

B $\frac{5}{4} \div \frac{3}{2}$

C $\frac{4}{5} \div \frac{2}{3}$

D $\frac{5}{4} \div \frac{2}{3}$

8 Understand ÷ of fractions as the inverse of x

A multiplied, instead of divided

B subtracted/added numerators, denominators

C correct

D reciprocal

9 Which of the following has the same value as $\frac{4}{9} \div \frac{1}{4}$?

A $\frac{4}{9} \times \frac{4}{1}$

B $\frac{4}{9} \times \frac{1}{4}$

C $\frac{9}{4} \times \frac{4}{1}$

D $\frac{9}{4} \times \frac{1}{4}$

10 Write a statement to represent dividing fractions

A subtracted

B multiplied

C correct

D added

11 Melissa had $\frac{1}{2}$ of a whole cake remaining. She cut the remaining cake into 3 pieces that were all the same size. Which of the following represents this situation?

A $\frac{1}{2} + \frac{1}{3}$

B $\frac{1}{2} \bullet 3$

C $\frac{1}{2} - \frac{1}{3}$

D $\frac{1}{2} \div 3$

12 Write a statement to represent dividing fractions

A multiplied

B divided divisor by dividend

C correct

D divisor divided by reciprocal of dividend

13 Which of the following is equivalent to $\frac{4}{12}$?

A $\frac{1}{4}$

B $\frac{8}{24}$

C $\frac{8}{16}$

D $\frac{2}{3}$

14 Find equivalent ratios by scaling up or down

A scaled denominator correctly, but not numerator

B correct

C scaled numerator incorrectly, did not reduce denominator

D scaled numerator correctly, did not reduce denominator

15 Which of the following is equivalent to the ratio below?

15:10

A 10:15

B 10:5

C 3:2

D 2:3

16 Solve applied problems involving rates

A divided rate into improper given number

B added rate to time

C correct

D multiplied rate by rounded up amount of time

17 If Sam rode his bike at an average rate of 15 miles per hour, what is the total distance he would travel in $2\frac{1}{2}$ hours?

A 6 miles

B 17 miles

C $30\frac{1}{2}$ miles

D $37\frac{1}{2}$ miles

18 Solve applied problems involving rates

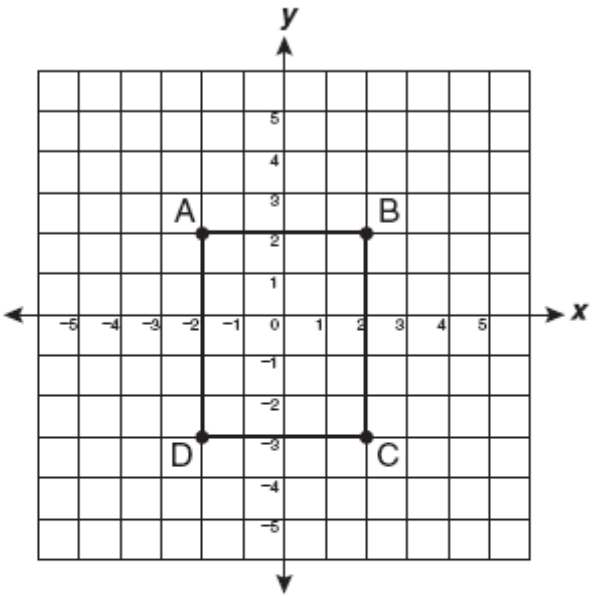
A rounded time up then multiplied by rate

B correct

C incorrect time and rate

D multiplied whole part of time by rate, + fractional part

19 Rectangle ABCD is graphed on the coordinate plane below.



Which ordered pair *best* represents the location of point D?

A $(-2, -3)$

B $(-3, 2)$

C $(2, -3)$

D $(3, -2)$

20 Plot ordered pairs of integers

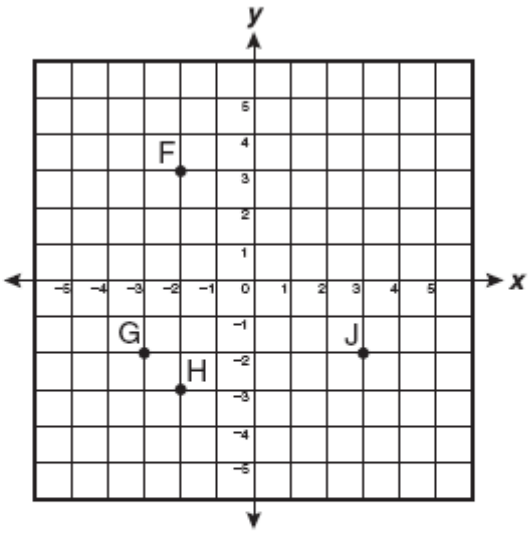
A (-y, x)

B (-x, -y)

C correct

D (y, x)

21 Which point appears to be located at (−2, 3)?



A F

B G

C H

D J

22 Use letters, with units, to represent quantities

A correct

B subtracted instead of added

C multiplied

D divided

23 Juan found he weighs *x* pounds more now than he did last month. If Juan weighed 105 pounds last month, which of the following represents the amount he weighs now?

A 105*x* pounds

B 105 ÷ *x* pounds

C 105 − *x* pounds

D 105 + *x* pounds

24 Use letters, with units, to represent quantities

A added instead of multiplied

B subtracted

C correct

D divided

25 In a classroom of 35 students, 23 are girls. Which of the following can be used to determine b, the number of students in the classroom that are boys?

A $\frac{23}{b} = 35$

B $23b = 35$

C $23 - b = 35$

D $23 + b = 35$

26 Represent words using algebraic equations

A correct

B switched total and addend in equation

C added total to addend, difference equation

D impossible difference equation

27 Which of the following represents the statement below?

the quotient of a number, y, and 7

A $y + 7$

B $y - 7$

C $7y$

D $\frac{y}{7}$

28 Understand congruence for polygons

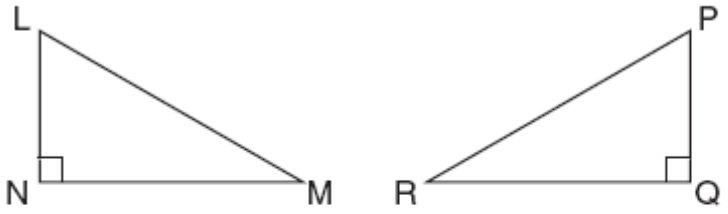
A correct

B angle does not correspond

C angle does not correspond

D angle does not correspond

29 Triangle LNM is congruent to triangle PQR, as shown below.



What side of triangle PQR corresponds to $\overline{LN}$ in triangle LNM?

A $\overline{PQ}$

B $\overline{QR}$

C $\overline{RP}$

D $\overline{NM}$

30 Understand congruence for polygons

A side lengths do not correspond, may not be congruent

B angles do not correspond, may not be congruent

C correct

D angles do not correspond, may not be congruent

31 Elizabeth is going to roll a fair six-sided number cube on which each face is labeled with a different numeral. If the numerals are 1 through 6, what is the probability she will roll a 3 on the first roll?

A $\frac{1}{2}$

B $\frac{1}{3}$

C $\frac{1}{5}$

D $\frac{1}{6}$

32 Express probabilities as fractions, decimals or %s

A correct

B probability of other event

C probability of other event

D probability of any event

33 If a letter in the word MICHIGAN is randomly selected, what is the probability that the letter selected will be an "I" or an "A"?

A $\frac{2}{8}$

B $\frac{3}{8}$

C $\frac{3}{5}$

D $\frac{5}{8}$

34 Solve contextual problems involving percentages

A correct

B % as whole number divided by total

C divided by % as whole number

D place value error

35 The total cost, including tax, for David's lunch was $6.35. He left a tip, which was 20% of the total cost of his lunch. What was the amount of the tip David left?

A $1.17

B $1.20

C $1.23

D $1.27

36 Solve contextual problems involving percentages

A total divided by %

B multiplied by incorrect %

C added total to % as whole number

D correct

37 Gwen is going to make two batches of cookies. She needs $\frac{2}{3}$ cup of sugar for each batch. Which is *closest* to the total number of cups of sugar that Gwen will need?

A $\frac{1}{2}$

B $1\frac{1}{2}$

C $2\frac{1}{2}$

D 3

38 Estimate calculations involving rational numbers

A one of addends

B underestimated

C correct

D overestimated

39 A certain car can travel 25 miles on $2\frac{1}{4}$ gallons of gasoline. At this rate, which of the following is *closest* to the total number of miles the car can travel on $12\frac{1}{2}$ gallons of gasoline?

A 50

B 150

C 250

D 300

40 Solve applied problems with appropriate decimals

A correct

B transposed two numbers after decimal

C subtracted instead of divided

D added

41 In the city of Marquette, it rained 4.28 inches in September and 8.9 inches in October. What was the total amount of rain for September and October in Marquette?

A 5.17 inches

B 12.00 inches

C 13.18 inches

D 38.09 inches

42 Solve applied problems with appropriate decimals

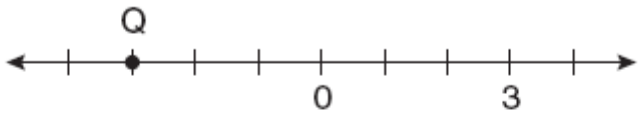
A correct

B divided and used one incorrect number

C added instead of subtracted

D incorrect minuend

43 Which best represents the location of point Q?



A $\frac{1}{3}$

B $\frac{1}{4}$

C -3

D -4

44 Locate negative rational numbers on number line

A face value error

B place value error

C correct

D face value error

45 Which point appears to be located at $\frac{15}{4}$ on the number line below?

A A

B B

C C

D D

46 Relate simple linear equations to contexts; solve

A added instead of subtracted

B correct

C difference minus subtrahend equals minuend

D subtrahend minus difference equals minuend

47 What value of p makes the following true?

$$-4p = 16$$

A -20

B -12

C -4

D 4

48 Relate simple linear equations to contexts; solve

A multiplied instead of subtracted

B added

C divided

D correct

49 Which is equivalent to $x + 11 = 4$?

A $x + 11 - 11 = 4 - 11$

B $x - 11 = 4 - 11$

C $x + 11 - 4 = 4 + 4$

D $x + 11 = 4 + 11$

50 Add, subtract numbers on both sides of equations

A added instead of subtracted

B correct

C multiplied

D divided

51 Which number can be put in the blank below to make the statement true?

$$b - 7 = 18$$

$$b - 7 + \_\_ = 18 + 7$$

$$b = 25$$

A $^{-}18$

B $^{-}7$

C 7

D 18

52 Multiply, divide numbers on both sides of equations

A subtracted constant from only one side of equation

B correct

C added constant to only one side of equation

D divided each side of equation by different numbers

53 Which single step will correctly solve for p in the statement below?

$$4p = 12$$

A Add 4 to both sides.

B Subtract 4 from both sides.

C Multiply both sides by 4.

D Divide both sides by 4.

54 Multiply, divide numbers on both sides of equations

A correct

B added instead of divided

C subtracted

D multiplied

55 Which of the following is equivalent to 2 meters?

A 2,000 mm

B 200 mm

C 20 mm

D 0.2 mm

56 Convert measurements within a single system

A multiplied instead of divided

B added

C correct

D incorrect conversion

57 What is the total number of square inches in 5 square feet?

A 25

B 60

C 300

D 720

58 Understand rigid motions & relate to congruence

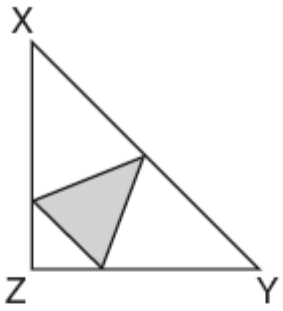
A translation does not create change noted

B correct

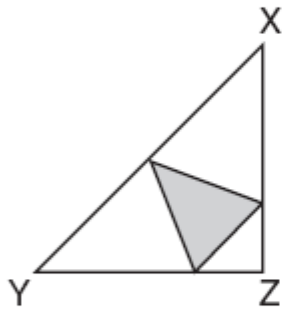
C translation does not create change noted

D translation does not create change noted

59 Which of the following appears to show the reflection of the figure below over $\overline{XZ}$?



A



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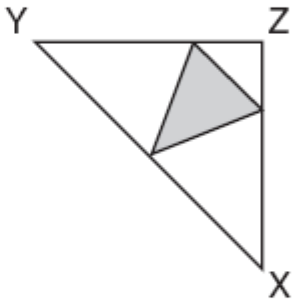

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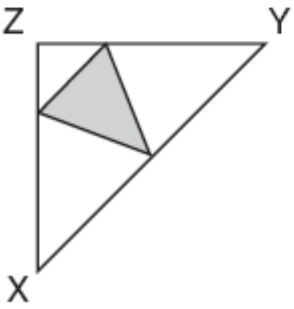

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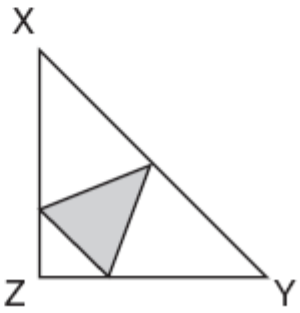


60 Understand rigid motions & relate to congruence

A figure not result of given rotation

B figure not result of given rotation

C figure not result of given rotation

D correct

61 Which of the following is an algebraic equation?

A $m \div 3$

B $m = 3$

C $m + 3$

D $m \bullet 3$

62 Relationships can be shown by graphs and tables

A incorrect intercept and slope

B slope of line is negative reciprocal

C correct

D slope of line is reciprocal

63 Anna has a bag of gumballs all the same shape and size. In the bag there are the following:

- 2 green gumballs
- 3 yellow gumballs
- 4 orange gumballs
- 4 brown gumballs

If Anna selects only 1 gumball from the bag without looking, what is the probability that it will be orange?

A $\frac{1}{13}$

B $\frac{1}{4}$

C $\frac{4}{13}$

D $\frac{4}{9}$

64 Use simple compositions of rigid transformations

A not composition of transformations noted

B correct

C not composition of transformations noted

D not composition of transformations noted

65 What is 45% of 800?

A 36

B 177

C 360

D 450

66 Order rational numbers and place on the number line

A correct

B incorrect order

C reversed order

D incorrect order

67 Which of the following is equivalent to $\frac{3}{8}$?

A 0.375

B 0.380

C 2.667

D 3.800

68 Understand that rational numbers are quotients of integers

A difference

B correct

C sum

D product

69 Which of the following is an integer?

A 0

B $\frac{1}{3}$

C $2\frac{5}{6}$

D 0.25

70 Know the absolute value of a number

A negative integer

B negative reciprocal

C positive reciprocal

D correct

71 Which of the following represents the phrase below?

ten less than two times x

A $2x - 10$

B $10 - 2x$

C $2(x - 10)$

D $2(10 - x)$

72 Simplify linear expression & evaluate using values

A omitted one x addend, incorrect addition with y addend

B correct

C added like coefficients, multiplied, & multiplied variables

D added all coefficients, multiplied variables

73 What value of x makes the statement below true?

$$2x + 3 = 33$$

A 15

B 18

C 28

D 30

74 Solve problems involving linear functions

A correct

B added slope to variable instead of multiplied

C used first value in table, not slope

D added incorrect slope to variable

75 Sam has a square game board that has a perimeter of 64 inches. What is the length of one side of the game board?

A 8 inches

B 16 inches

C 32 inches

D 256 inches

76 Understand and apply properties of lines and angles

A given angle minus 90 degrees

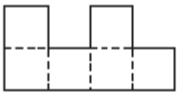
B used incorrect angle measure for straight line

C correct

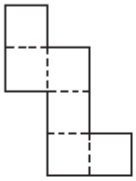
D incorrect subtraction

77 Which is a net of a cube?

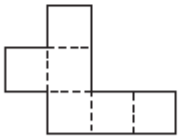
A



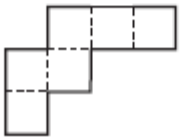
B



C



D



78 Compute volume & surface area of rectangular prisms

A added dimensions instead of multiplied

B multiplied two dimensions then added to third dimension

C added two dimensions then multiplied by third dimension

D correct

79 Which is equivalent to $^{-}8(^{-}4)$?

A 32

B 2

C $^{-}12$

D $^{-}32$

80 Understand fractions as a quotient of two integers

A correct

B divided denominator by numerator

C divided numerator by additive inverse of denominator

D divided additive inverse of denominator by numerator

81 Which of the following represents 3.2×10^3 in standard form?

A 320

B 3,200

C 32,000

D 320,000

82 Solve for the unknown in equations

A dividend times dividend

B correct

C quotient not divisor

D reciprocal

83 Which is equivalent to $^{-}8 - (^{-}4)$?

A $^{-}12$

B $^{-}4$

C 4

D 12

Scoring Key: Part 1

Item No.	Correct Answer	GLCE	Type	Description
1	A	N.FL.06.04	Core-NC	x and ÷ any two fractions, including mixed numbers
2	A	N.FL.06.04	Core-NC	x and ÷ any two fractions, including mixed numbers
3	B	N.FL.06.04	Core-NC	x and ÷ any two fractions, including mixed numbers
4	C	N.FL.06.10	Core-NC	Compute with positive rational numbers
5	D	N.FL.06.10	Core-NC	Compute with positive rational numbers
6	B	N.FL.06.10	Core-NC	Compute with positive rational numbers

NC=Non Calculator

Scoring Key: Part 2

Item No.	Correct Answer	GLCE	Type	Description
7	C	N.MR.06.01	Core	Understand ÷ of fractions as the inverse of x
8	C	N.MR.06.01	Core	Understand ÷ of fractions as the inverse of x
9	A	N.MR.06.01	Core	Understand ÷ of fractions as the inverse of x
10	C	N.FL.06.02	Core	Write a statement to represent dividing fractions
11	D	N.FL.06.02	Core	Write a statement to represent dividing fractions
12	C	N.FL.06.02	Core	Write a statement to represent dividing fractions
13	B	N.ME.06.11	Core	Find equivalent ratios by scaling up or down
14	B	N.ME.06.11	Core	Find equivalent ratios by scaling up or down
15	C	N.ME.06.11	Core	Find equivalent ratios by scaling up or down
16	C	A.PA.06.01	Core	Solve applied problems involving rates
17	D	A.PA.06.01	Core	Solve applied problems involving rates
18	B	A.PA.06.01	Core	Solve applied problems involving rates
19	A	A.RP.06.02	Core	Plot ordered pairs of integers
20	C	A.RP.06.02	Core	Plot ordered pairs of integers

Scoring Key: Part 2 (continued)

Item No.	Correct Answer	GLCE	Type	Description
21	A	A.RP.06.02	Core	Plot ordered pairs of integers
22	A	A.FO.06.03	Core	Use letters, with units, to represent quantities
23	D	A.FO.06.03	Core	Use letters, with units, to represent quantities
24	C	A.FO.06.03	Core	Use letters, with units, to represent quantities
25	D	A.FO.06.06	Core	Represent words using algebraic equations
26	A	A.FO.06.06	Core	Represent words using algebraic equations
27	D	A.FO.06.06	Core	Represent words using algebraic equations
28	A	G.GS.06.02	Core	Understand congruence for polygons
29	A	G.GS.06.02	Core	Understand congruence for polygons
30	C	G.GS.06.02	Core	Understand congruence for polygons
31	D	D.PR.06.01	Core	Express probabilities as fractions, decimals or %s
32	A	D.PR.06.01	Core	Express probabilities as fractions, decimals or %s
33	B	D.PR.06.01	Core	Express probabilities as fractions, decimals or %s

Scoring Key: Part 3

Item No.	Correct Answer	GLCE	Type	Description
34	A	N.MR.06.13	Core	Solve contextual problems involving percentages
35	D	N.MR.06.13	Core	Solve contextual problems involving percentages
36	D	N.MR.06.13	Core	Solve contextual problems involving percentages
37	B	N.FL.06.14	Core	Estimate calculations involving rational numbers
38	C	N.FL.06.14	Core	Estimate calculations involving rational numbers
39	B	N.FL.06.14	Core	Estimate calculations involving rational numbers
40	A	N.FL.06.15	Core	Solve applied problems with appropriate decimals
41	C	N.FL.06.15	Core	Solve applied problems with appropriate decimals
42	A	N.FL.06.15	Core	Solve applied problems with appropriate decimals
43	C	N.ME.06.17	Core	Locate negative rational numbers on number line
44	C	N.ME.06.17	Core	Locate negative rational numbers on number line
45	B	N.ME.06.17	Core	Locate negative rational numbers on number line
46	B	A.FO.06.11	Core	Relate simple linear equations to contexts; solve
47	C	A.FO.06.11	Core	Relate simple linear equations to contexts; solve
48	D	A.FO.06.11	Core	Relate simple linear equations to contexts; solve
49	A	A.FO.06.12	Core	Add, subtract numbers on both sides of equations
50	B	A.FO.06.12	Core	Add, subtract numbers on both sides of equations
51	C	A.FO.06.12	Core	Add, subtract numbers on both sides of equations
52	B	A.FO.06.13	Core	Multiply, divide numbers on both sides of equations

Scoring Key: Part 3 (continued)

Item No.	Correct Answer	GLCE	Type	Description
53	D	A.FO.06.13	Core	Multiply, divide numbers on both sides of equations
54	A	A.FO.06.13	Core	Multiply, divide numbers on both sides of equations
55	A	M.UN.06.01	Core	Convert measures within a single system
56	C	M.UN.06.01	Core	Convert measures within a single system
57	D	M.UN.06.01	Core	Convert measures within a single system
58	B	G.TR.06.03	Core	Understand rigid motions & relate to congruence
59	A	G.TR.06.03	Core	Understand rigid motions & relate to congruence
60	D	G.TR.06.03	Core	Understand rigid motions & relate to congruence
61	B	A.FO.06.04	Extended	Distinguish between algebraic expression/equation
62	C	A.RP.06.08	Extended	Relationships can be shown by graphs and tables
63	C	D.PR.06.02	Extended	Compute probabilities of events from experiments
64	B	G.TR.06.04	Extended	Use simple compositions of rigid transformations
65	C	N.FL.06.12	Extended-NC	Calculate part of a number given the % and number
66	A	N.ME.06.05	Extended	Order rational numbers and place on the number line
67	A	N.ME.06.06	Extended	Show rationals as fractions or terminating decimals
68	B	N.ME.06.18	Extended	Understand that rationals are quotients of integers
69	A	N.ME.06.19	Extended	Understand that 0 is neither negative nor positive

Scoring Key: Part 3 (continued)

Item No.	Correct Answer	GLCE	Type	Description
70	D	N.ME.06.20	Extended	Know the absolute value of a number
71	A	A.FO.06.05	Future	Use conventions for writing algebraic expressions
72	B	A.FO.06.07	Future	Simplify linear expression & evaluate using values
73	A	A.FO.06.14	Future	Solve equations of the form ax + b = c
74	A	A.PA.06.09	Future	Solve problems involving linear functions
75	B	A.RP.06.10	Future	Show relationships using equations, tables, graphs
76	C	G.GS.06.01	Future	Understand and apply properties of lines and angles
77	B	M.PS.06.02	Future	Draw patterns for rectangular prisms
78	D	M.TE.06.03	Future	Compute volume & surface area of rectangular prisms
79	A	N.FL.06.09	Future-NC	Compute with integers, use # line & chip models
80	A	N.ME.06.07	Future	Understand fractions as a quotient of two integers
81	B	N.ME.06.16	Future	Use integer exponents & scientific notation
82	B	N.MR.06.03	Future	Solve for the unknown in equations
83	B	N.MR.06.08	Future	Understand - and ÷ as inverse of + and x