THIRD SPACE LEARNING

7th Grade CCSS State Test

Common Core Grade 7

Grade 7

Questions

Name: ..... Class: .....

Date: ..... Score: .....

1 Which expression has the greatest value when $y = 50$?

A. $y - 10$
B. $10 - y$
C. $y - (-10)$
D. $-10 - y$

2 $\frac{3}{4}$ of a serving has $\frac{1}{3}$ of a cup of fruit. How many cups of fruit are in 1 serving?

A. $2\frac{1}{4}$

B. $1\frac{1}{12}$

C. $\frac{7}{12}$

D. $\frac{4}{9}$

3 Which expressions are equivalent to $4(x + 0.5) - 5.6x - 3$? Select all the correct answers.

A. $-9.6x + 5$
B. $4x - 5.6x - 1$
C. $-1.6x - 5$
D. $-1.6x - 1$
E. $3.4x$

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4 A bag contains red marbles, blue marbles and green marbles. The number of each of the marbles in the bag is as follows:

- 15 red marbles
- 10 blue marbles
- 20 green marbles

What is the probability that the marble selected is NOT green?

A. $\frac{15}{45}$
B. $\frac{5}{9}$
C. $\frac{4}{5}$
D. $\frac{4}{9}$

5 A pair of shoes that were originally $66.00 are on sale for 40% off. After the discount and the addition of a 7% sales tax. How much will you pay for the shoes? Choose the equation representing the total cost, c.

A. (66 x 0.6) x 1.07 = c
B. 66 x 0.4 x 0.07 = c
C. 66 x 0.4 + 1.07 = c
D. 66 x 0.6 + 66 x 0.07 = c

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6 A store sells 6 pairs of socks for $15. They also sell 8 pairs of socks for $16.99. What is the difference between the unit rates?

A. $0.25 per pair
B. $2.12 per pair
C. $0.38 per pair
D. $1.99 per pair

7 Which expressions are equal to –24? Select all the correct answers.

A. –6(–4)
B. 48 ÷ (–2)
C. 2 x (–12)
D. $\frac{-24}{-1}$
E. 3 x (–4) x (–2)

---

8 Which scenario below will result in a final value of zero?

A. The overall change in temperature from 9° to -9°.
B. The balance of an account after a $15 payment, if the starting balance was –$15.
C. Walking from a train platform that is -5 feet below sea level to the street.
D. A hot air balloon that goes from sea level to 15 meters above sea level.

9 Which value of x makes the equation true?

$3(x - 5) - 6 = -\frac{1}{2}(6x - 18)$

A. $x = -5$
B. $x = 4$
C. $x = -4$
D. $x = 5$

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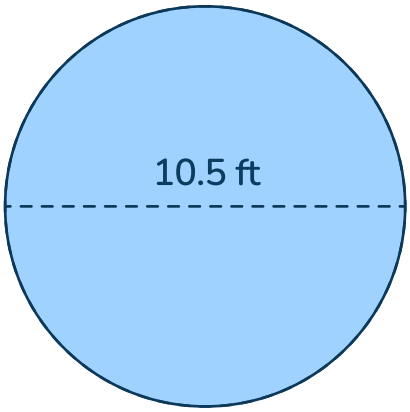
10 A school is building a new fence around their circular compost bin, shown in the diagram below.



How many feet of fencing is needed to enclose the compost bin?

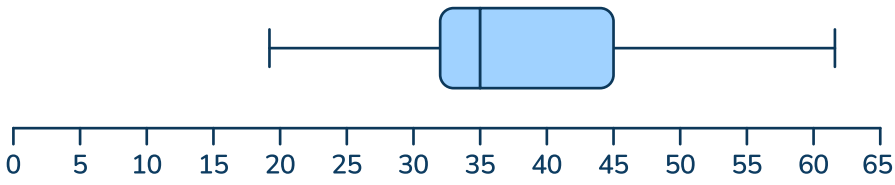
A. 32.99 ft
B. 16.485 ft
C. 86.546 ft
D. 65.94 ft

11 The table below shows the proportional relationship between x and y. What is the constant of proportionality?

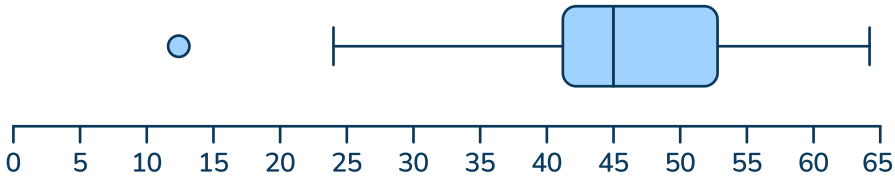
x	y
3	7.5
5	12.5
6	15
9	22.5

A. 5
B. 7.5
C. 2.5
D. 2

12 The two box plots show the total points per game for the school's basketball team last year and this year.



Total points per game last year

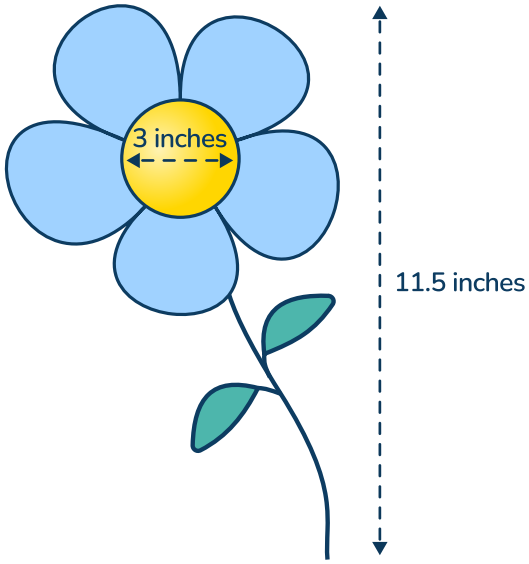


Total points per game this year

Rasheem says that on average, the team was better this year. Which statement about the box plot supports his conclusion?

A. There is an outlier of 10 from the games this year, but no outlier for last year.
B. All the games from this year scored more points than last year.
C. More than half of this year's games had more points than the top 25% of last year's.
D. The range for this year is larger than the range for last year.

13 Zane owns a flower shop. He sends the drawing below to be designed for his business cards.



He asks the designer to design a flower that is $\frac{1}{5}$ the original size.
What will the area of the center of the flower be on the business card? Round to the nearest hundredth.

A. 0.28 inches^2
B. 0.6 inches^2
C. 28.26 inches^2
D. 7.07 inches^2

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14 The weather app indicates that the probability of rain tomorrow is 0.2. Which word is the best description of the likelihood of rain tomorrow?

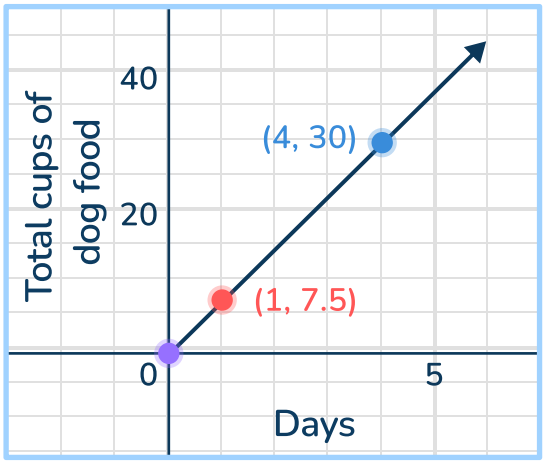
A. likely
B. unlikely
C. certain
D. impossible

15 Solve for r.

$\frac{1}{3}r - 5 \geq -3$

A. $r \geq -24$
B. $r \geq \frac{2}{3}$
C. $r \geq 2\frac{2}{3}$
D. $r \geq 6$

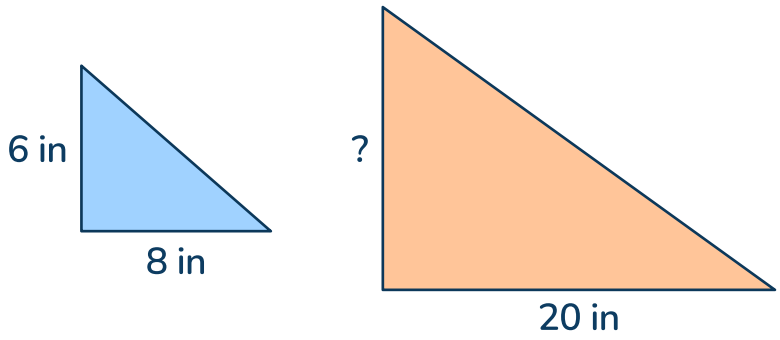
16



Which statements about the graph are true? Select all the correct answers.

A. The relationship between days and the total cups of dog food is proportional.
B. The point (1, 7.5) is the unit rate per day.
C. The point (4, 30) shows that after 4 days, the total cups of dog food is 30.
D. The point (3, 23.5) is a point on the line.
E. As the total cups of dog food increases by 1, the days increase by 7.5.

17 The orange triangle is a scaled version of the blue triangle. What is the missing height?



A. 2.4 in
B. 18 in
C. 12.5 in
D. 15 in

---

18 Which table shows a proportional relationship between x and y?

A.

x	0	1	2	3
y	0	2	3	4

B.

x	2	3	4	10
y	1	1.5	2	5

C.

x	1	2	4	8
y	4	8	12	16

D.

x	0	3	4	7
y	1	6	8	14

19 What is the value of the expression?

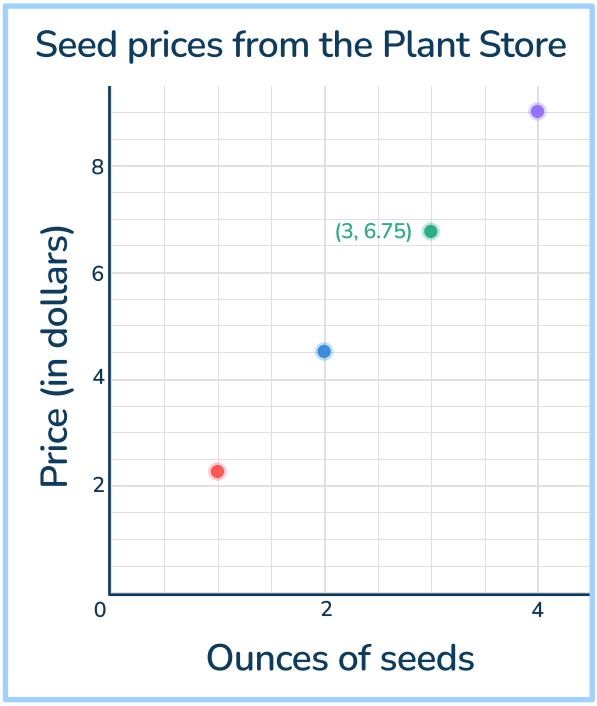
$$\frac{2 + \frac{1}{4} \div 3 - 2.1^2}{-5 \times 2}$$

A. 0.166
B. –0.18225
C. $0.232\overline{6}$
D. 0.366

20 Avery bought 3 games at the same price. Avery went to the store with $52 and left with $13.75. Choose the equation and solution that represents the cost of each game, g.

A. $52 - 3g = 13.75,\ g = 12.75$
B. $3g - 52 = 13.75,\ g = 11.75$
C. $3g + 13.75 = 52,\ g = 11.50$
D. $52 - 13.75g = 3,\ g = 12.50$

21 What does point (3, 6.75) mean in the context of the graph below?



A. 6.75 ounces of seeds cost $3
B. 3 ounces of seeds cost $6.75
C. 6.75 seeds cost $3
D. 3 seeds cost $6.75

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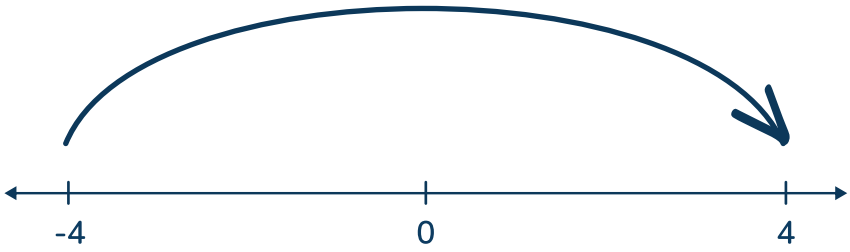
22 Which expression is equivalent to $-45x + 9$?

A. $-3\ (15x - 3)$
B. $9\ (5x + 1)$
C. $-9\ (-5x + 1)$
D. $3\ (15x - 3)$

23 Which equations are shown by the number line? Select all the correct answers.



A. –4 + –4 = –8
B. 4 + (–4) = 0
C. 4 – (–4) = 0
D. –4 + 8 = 4
E. –4 – (–8) = 8

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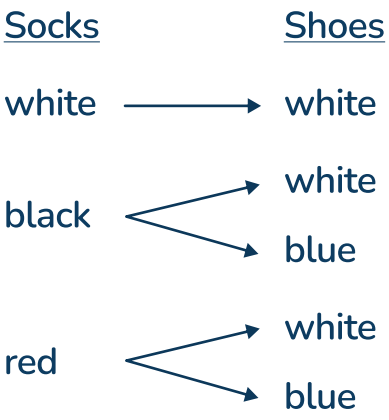
24 Hector is five years older than his brother Dean. Dean is twice the age of their sister Mia. Which equation(s) show the relationship between Hector's age, h, and Mia's age, m. Select all the correct answers.

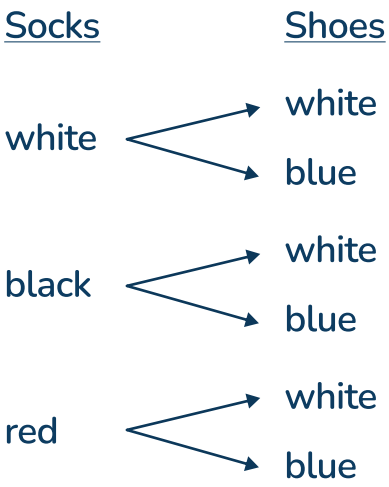
A. $\frac{h-5}{2} = m$
B. $10 + 2h = m$
C. $2m + 5 = h$
D. $2(h + 5) = m$
E. $2(m + 5) = h$

25 There are 3 colors of socks and 2 colors of shoes.
Socks: White, black, red
Shoes: white, blue
Which is the correct sample space for all possible combinations of socks and shoes?

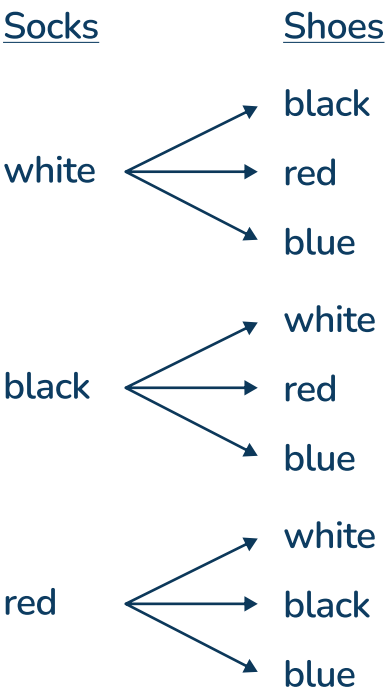
A.



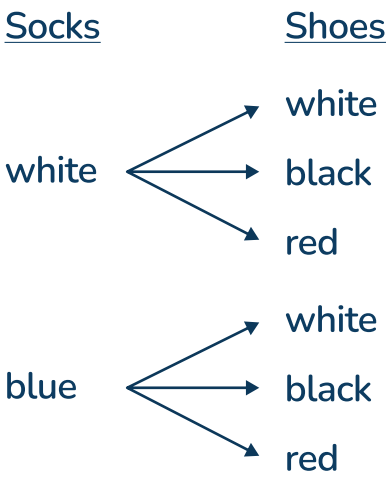
C.



B.



D.



26 Bill runs $7\frac{1}{2}$ miles in $1\frac{1}{4}$ hours. What is his average speed in miles per hour?

A. $7\frac{1}{10}$ mph

B. 6 mph

C. $7\frac{1}{5}$ mph

D. $6\frac{3}{10}$ mph

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27 Anita is solving the two equations below. She says, "I can just solve expression a because expression b will have the same answer." Do you agree? Why or why not?

- Expression a: 4-6.7
- Expression b: 6.7 + (-4)

A. Yes, because subtracting is the same as adding the opposite.
B. No, because you cannot subtract a larger number from a smaller one.
C. Yes, because the expressions have the same numbers.
D. No, because the terms in each expression are opposites.

28 Helen and Bo were comparing the price of mangos, m, to papayas, p.

Helen's equation: $m = p + 0.2p$
Bo's: $1.2p = m$

Which statement about the equations is correct?

A. Bo's equation shows that mangos cost 120% more than papayas.
B. Helen's equation shows mangos cost 20% more than papayas.
C. Bo's equation shows that papayas cost 1.2% more than mangos.
D. Helen's equation shows that papayas cost 2% more.

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29 The equation $6.5x = y$ models the cost, in dollars, for a child's movie tickets. The table models the cost, y, for an adult's ticket.

x	3	5	6
y	\$33.75	\$56.25	\$67.50

Which comparison statement is true?

A. 1 adult ticket costs \$14.75 more than 1 child ticket
B. 1 child ticket costs \$4.75 more than 1 adult ticket
C. 1 child ticket and 1 adult ticket cost \$14.75
D. 1 adult ticket costs \$4.75 more than 1 child ticket

30 Evaluate the following expression: $(-9)(0.4)(\frac{4}{5})$

A. –2.88
B. 2.88
C. 3.6
D. –3.6

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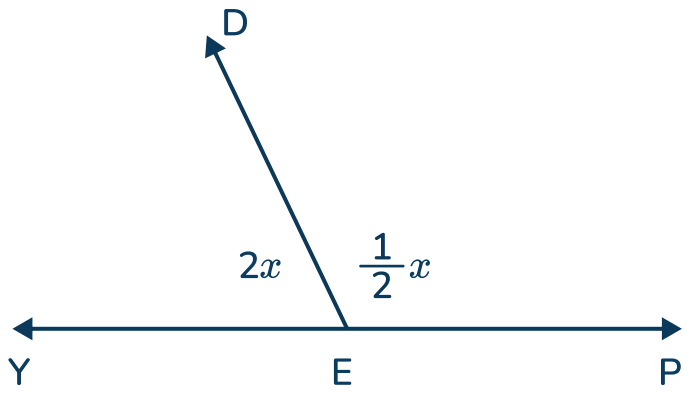
31 The figure shows line YP and two angles formed by ray ED. Solve for x.



A. 144
B. 72
C. 36
D. 180

32 Erica bought two pairs of shoes for $24.99 each. She also bought a pack of socks for $8. What was the total cost, including a 7% sales tax?

A. $35.30
B. $53.92
C. $57.98
D. $62.04

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33 An animal shelter adopted 15 pets this week, leaving 30 pets at the shelter. What was the percent change in pets at the shelter this week?

A. 50%
B. 200%
C. 33%
D. 66%

34 Convert $\frac{2}{9}$ to a decimal.

A. 0.29
B. $0.\overline{2}$
C. 0.2
D. 2.9

---

35 There are three different colors of marbles in a bag. If the probability of getting blue is $\frac{1}{3}$ and the probability of getting yellow is $\frac{2}{5}$, what is the probability of getting red?

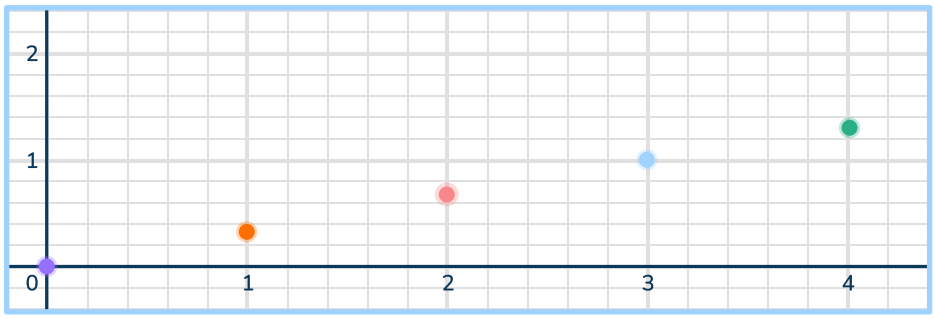
A. $\frac{13}{15}$

B. $\frac{11}{15}$

C. $\frac{4}{15}$

D. $\frac{2}{15}$

36



What is the constant of proportionality for the relationship shown in the graph?

A. $\frac{1}{3}$
B. 5
C. $\frac{5}{3}$
D. 3

---

37 Which value is closest to the difference of $\frac{29}{30} - \frac{20}{11}$?

A. $\frac{1}{2}$
B. $-\frac{1}{2}$
C. 1
D. -1

38 Marta sells bracelets for \$8 each. She has already sold 5 bracelets, b. She wants to earn at least \$90. Write an inequality to represent the situation.

A. $5b + 8 \geq 90$
B. $5b + 8 \leq 90$
C. $8b + 40 \leq 90$
D. $8b + 40 \geq 90$

---

39 What is the equation shown by the table?

x	y
4	15.2
5	19
9	34.2

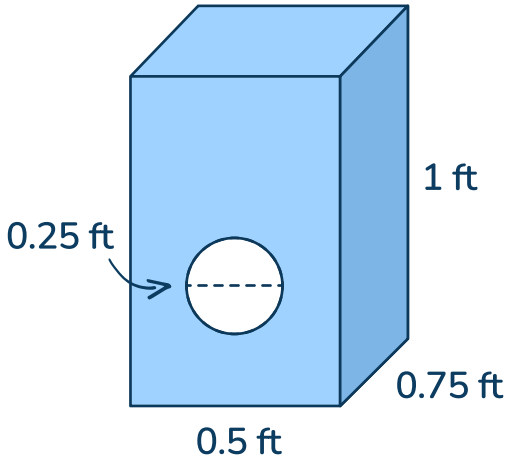
A. $11.2x = y$
B. $11.2 + x = y$
C. $3.8x = y$
D. $3.8 + x = y$

40 Mae earns $20.25 per hour and works 40 hours per week. Mae is paid every 2 weeks, and she puts 20% of her check into savings.
How much money does Mae save after 6 weeks?

A. $972
B. $324
C. $486
D. $1,600

Standard: 7.NS.3 7.G.4, 7.G.6, 7.RP.3
DOK 3
Extended Answer Response - 6 points

41 Celeste paints and sells birdhouses. The paint costs $25.99 a gallon and each gallon paints 400 square feet.



Part A: How many square feet of paint does Celeste use to paint 1 birdhouse? Explain how you solved it.

_____

_____

_____

_____

Part B: If Celeste has painted 8 bird houses, what percent of the gallon of paint has she used? Round to the nearest whole percent.

_____ %

Extended response - 6 points
Standard: 7.EE.4a, 7.EE.2, 7.EE.1
DOK 3

42 A doctor's office plans appointments from 9:00 am – 3:00 pm every 20 minutes per doctor. The office has 4 doctors.

Part A: Write an equation showing the total appointments left, a, given the hours passed in a day, h. Explain each part of the equation in context.

Equation 1: _____

_____

_____

_____

Part B: Write an equivalent equation that represents Part A in a different way. Explain each part of the equivalent equation in context. Then compare it to the first equation.

Equation 2: _____

_____

_____

_____

_____

_____

Answer Key - Multiple Choice

Item number	Correct answer	Standard(s)	Depth of Knowledge
1	C	**7.NS.1c**	DOK 1
2	D	**7.RP.1**	DOK 2
3	B, D	**7.EE.1**	DOK 1
4	B	**7.SP.7**	DOK 2
5	A	**7.RP.3, 7.EE.4a**	DOK 2
6	C	**7.RP.2b**	DOK 2
7	B, C	**7.NS.2a, 7.NS.2b**	DOK 1
8	B	**7.NS.1a**	DOK 2
9	D	**7.EE.3**	DOK 1
10	A	**7.G.4**	DOK 2
11	C	**7.RP.2b**	DOK 1
12	C	**7.SP.3**	DOK 2
13	A	**7.G.1, 7.G.4**	DOK 2
14	B	**7.SP.5**	DOK 1
15	D	**7.EE.4b**	DOK 1
16	A, B, C	**7.RP.2d, 7.RP.2a, 7.RP.2b**	DOK 2
17	D	**7.G.1, 7.RP.2b**	DOK 1
18	B	**7.RP.2a**	DOK 1
19	C	**7.NS.3**	DOK 1
20	A	**7.EE.4a**	DOK 2

Item number	Correct answer	Standard(s)	DOK
21	B	**7.RP.2d**	DOK 1
22	A	**7.EE.1**	DOK 1
23	C, D	**7.NS.1b, 7.NS.1c**	DOK 2
24	A, C	**7.EE.1, 7.EE.3, 7.EE.4**	DOK 2
25	C	**7.SP.8b**	DOK 1
26	B	**7.RP.1**	DOK 2
27	D	**7.NS.1b, 7.NS.1c**	DOK 3
28	B	**7.EE.2, 7.RP.3**	DOK 2
29	D	**7.RP.2b**	DOK 2
30	A	**7.NS.2**	DOK 1
31	B	**7.G.5**	DOK 2
32	D	**7.EE.3, 7.RP.3**	DOK 2
33	C	**7.RP.3**	DOK 2
34	B	**7.NS.2d**	DOK 1
35	C	**7.SP.7**	DOK 1
36	A	**7.RP.2b**	DOK 1
37	D	**7.NS.1d**	DOK 2
38	D	**7.EE.4b**	DOK 2
39	C	**7.RP.2c**	DOK 2
40	A	**7.EE.3**	DOK 2
41	Extended Response	**7.NS.3 7.G.4, 7.G.6, 7.RP.3**	DOK 3
42	Extended Response	**7.EE.4a, 7.EE.2, 7.EE.1**	DOK 3

ANSWERS SORTED BY CCSS STRAND

RP			
2	D	**7.RP.1**	DOK 2
5	A	**7.RP.3, 7.EE.4**	DOK 2
6	C	**7.RP.2b**	DOK 2
11	C	**7.RP.2b**	DOK 1
16	A, B, C	**7.RP.2d, 7.RP.2a, 7.RP.2b**	DOK 2
18	B	**7.RP.2a**	DOK 1
21	B	**7.RP.2d**	DOK 1
26	B	**7.RP.1**	DOK 2
29	D	**7.RP.2b**	DOK 2
33	C	**7.RP.3**	DOK 2
36	A	**7.RP.2b**	DOK 1
39	C	**7.RP.2c**	DOK 2

EE			
3	B, D	**7.EE.1**	DOK 1
9	D	**7.EE.3**	DOK 1
15	D	**7.EE.4b**	DOK 1
20	A	**7.EE.4a**	DOK 2
22	A	**7.EE.1**	DOK 1
24	A, C	**7.EE.1, 7.EE.3, 7.EE.4**	DOK 2
28	B	**7.EE.2, 7.RP.3**	DOK 2
32	D	**7.EE.3, 7.RP.3**	DOK 2
38	D	**7.EE.4b**	DOK 2
40	A	**7.EE.3**	DOK 2
42	Extended Response	**7.EE.4a, 7.EE.2, 7.EE.1**	DOK 3

NS			
1	C	**7.NS.1c**	DOK 2
7	B, C	**7.NS.2a, 7.NS.2b**	DOK 1
8	B	**7.NS.1a**	DOK 2
19	C	**7.NS.3**	DOK 1
23	C, D	**7.NS.1b, 7.NS.1c**	DOK 2
27	D	**7.NS.1b, 7.NS.1c**	DOK 3
30	A	**7.NS.2c**	DOK 1
34	B	**7.NS.2d**	DOK 1
37	D	**7.NS.1d**	DOK 2
41	Extended Response	**7.NS.3 7.G.4, 7.G.6, 7.RP.3**	DOK 3

G			
10	A	**7.G.4**	DOK 2
13	A	**7.G.1, 7.G.4**	DOK 2
17	D	**7.G.1, 7.RP.2b**	DOK 1
31	B	**7.G.5**	DOK 2
41	Extended Response	**7.NS.3 7.G.4, 7.G.6, 7.RP.3**	DOK 3

SP			
4	B	**7.SP.7**	DOK 2
12	C	**7.SP.3**	DOK 2
14	B	**7.SP.5**	DOK 1
25	C	**7.SP.8b**	DOK 1
35	C	**7.SP.7**	DOK 1

Item	KEY	Rationale
41	6 points	Student correctly calculates the surface area: • Top/bottom: 0.5 x 0.75 = 0.375 • Left/right side: 0.75 x 1 = 0.75 • Back side: 0.5 x 1 = 0.5 • Front side: 0.5 – (0.125² x 3.14) = 0.4509 • Total surface area: 0.375 + 0.375 + 0.75 + 0.75 + 0.5 + 0.4509 = 3.2009 ft² And the percent of paint left: 3.2009 ft² x 8 = 25.6072 25.6072 ÷ 400 = 0.0640 = 6% Student clearly explains how they found the surface area, including subtracting the area of the circular opening from the front side.
	5 points	Student correctly calculates the surface area: • Top/bottom: 0.5 x 0.75 = 0.375 • Left/right side: 0.75 x 1 = 0.75 • Back side: 0.5 x 1 = 0.5 • Front side: 0.5 – (0.125² x 3.14) = 0.1075 • Total surface area: 0.375 + 0.375 + 0.75 + 0.75 + 0.5 + 0.1075 = 2.8575 ft² And the percent of paint left: 2.8575 ft² x 8 = 22.86 22.86 ÷ 400 = 0.05715 = 6% Student explains how they found the surface area, but some parts of the explanation are incomplete or unclear.
	4 points	Student makes 1 calculation error for the surface area: • Top/bottom: 0.5 x 0.75 = 0.375 • Left/right side: 0.75 x 1 = 0.75 • Back side: 0.5 x 1 = 0.5 • Front side: 0.5 – (0.125² x 3.14) = 0.1075 • Total surface area: 0.375 + 0.375 + 0.75 + 0.75 + 0.5 + 0.1075 = 2.8575 ft² And/or the percent of paint left: 2.8575 ft² x 8 = 22.86 22.86 ÷ 400 = 0.05715 = 6% Student explains how they found the surface area, but some parts of the explanation are incomplete or unclear.

Item	KEY	Rationale
	3 points	Student makes 2 or 3 calculation errors for the surface area: • Top/bottom: 0.5 x 0.75 = 0.375 • Left/right side: 0.75 x 1 = 0.75 • Back side: 0.5 x 1 = 0.5 • Front side: 0.5 – (0.125^2 x 3.14) = 0.1075 • Total surface area: 0.375 + 0.375 + 0.75 + 0.75 + 0.5 + 0.1075 = 2.8575 ft^2 And/or the percent of paint left: 2.8575 ft^2 x 8 = 22.86 22.86 ÷ 400 = 0.05715 = 6% Student explains how they found the surface area, but some parts of the explanation are incomplete or unclear.
	2 points	Student makes more than 4 calculation errors for the surface area: • Top/bottom: 0.5 x 0.75 = 0.375 • Left/right side: 0.75 x 1 = 0.75 • Back side: 0.5 x 1 = 0.5 • Front side: 0.5 – (0.125^2 x 3.14) = 0.1075 • Total surface area: 0.375 + 0.375 + 0.75 + 0.75 + 0.5 + 0.1075 = 2.8575 ft^2 And/or the percent of paint left: 2.8575 ft^2 x 8 = 22.86 22.86 ÷ 400 = 0.05715 = 6% Student attempts to explain how they found the surface area, but some parts of the explanation are incomplete or unclear.
	1 point	Student makes more than 4 calculation errors for the surface area: • Top/bottom: 0.5 x 0.75 = 0.375 • Left/right side: 0.75 x 1 = 0.75 • Back side: 0.5 x 1 = 0.5 • Front side: 0.5 – (0.125^2 x 3.14) = 0.1075 • Total surface area: 0.375 + 0.375 + 0.75 + 0.75 + 0.5 + 0.1075 = 2.8575 ft^2 And/or the percent of paint left: 2.8575 ft^2 x 8 = 22.86 22.86 ÷ 400 = 0.05715 = 6% Student fails to explain how they found the surface area.
	0 point	Response is blank or does not include any correct calculations or explanations.

Item	KEY	Rationale

42	6 points	Student correctly creates two equations that model the situation and correctly explains and compares each part of the equation in context.
		• $72 - 12h = a$
		  • 72 is the total appointments in the office for 1 day and $12h$ is the number of appointments completed for each hour, h, that has passed
		• $4(18 - 3h) = a$
		  • 18 is the total appointments for each doctor and $3h$ is the number of appointments completed for each hour, h, per doctor. Multiplying by 4 shows that there are 4 doctors.
		• $12(6 - h) = a$
		  • 12 is the total appointments for each hour. 6 is the total hours of appointments in 1 day, therefore $6 - h$ is the hours passed.
		• $18 \times 4 - 3 \times 4h = a$
		  • 18 is the total appointments for each doctor and multiplying by 4 shows that there are 4 doctors. 3 is the number of appointments completed for each hour per doctor and multiplying by $4h$ shows that there are 4 doctors and h hours passed.
		• $3 \times 6 \times 4 - 3 \times 4h = a$
		  • 3 represents the appointments each hour per doctor. Multiplying by 6 shows that there are 6 hours of appointments each day and multiplying by 4 shows that there are 4 doctors. 3 is the number of appointments completed for each hour per doctor and multiplying by $4h$ shows that there are 4 doctors and h hours passed.
		• $\frac{60}{20} \times 6 \times 4 - \frac{60}{20} \times 4h = a$
		  • $\frac{60}{20}$ represents 60 minutes in 1 hour divided by 20-minute appointments. Multiplying by 6 shows that there are 6 hours of appointments each day and multiplying by 4 shows that there are 4 doctors. $\frac{60}{20} \times 4h$ shows the number of appointments per hour times 4 doctors and the hours passed, h.

	5 points	Student correctly creates two equations that model the situation and explains and compares each part of the equation in context, but some parts may be incomplete or unclear.

Item	KEY	Rationale
	4 points	Student creates two equations that model the situation with 1 error and explains and compares each part of the equation in context, but some parts may be incomplete or unclear.
	3 points	Student creates two equations that model the situation with 2 errors and attempts to explain and compare each part of the equation in context, but the explanation is incomplete or unclear.
	2 points	Student creates two equations with 2 errors OR only creates one equation. Student attempts to explain and compare each part of the equation in context, but the explanation is incomplete, unclear or incorrect.
	1 point	Student creates two equations with more than 2 errors OR only creates one equation. The student attempts to explain and compare each part of the equation in context, but the explanation is incomplete, unclear or incorrect.
	0 point	Response is blank or does not include any correct calculations or explanations.

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