THIRD SPACE LEARNING

7th Grade FL BEST State Test

State Test Grade 7

Grade 7

Questions

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

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

1 Which expression has the greatest value when $t = 40$?

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

2 $\frac{3}{5}$ of a serving has $\frac{1}{4}$ of a cup of fruit. How many cups of fruit are in 1 serving?

A. $\frac{17}{20}$

B. $2\frac{2}{5}$

C. $\frac{5}{12}$

D. $\frac{3}{20}$

3 Which expressions are equivalent to $7(x + 0.4) - 2.5x - 6$? Select all correct answers.

A. $7x + 2.8 - 2.5x - 6$
B. $2.8x - 6$
C. $4.5x - 3.2$
D. $-4.5x - 6$
E. $2.8x$

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4 A bin contains 3 different types of toys. The number of each type of toy in the bin is as follows:

- 12 cars
- 9 dinosaurs
- 18 action figures

What is the probability that the toy selected is NOT a car?

A. $\frac{4}{13}$

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

C. $\frac{4}{5}$

D. $\frac{9}{13}$

5 A pair of shoes that were originally $74.00 are on sale for 30% off. After the discount and the addition of an 8% sales tax, how much will you pay for the shoes? Choose the equation representing the total cost, c.

A. $(74 \times 0.7) \times 1.08 = c$
B. $74 \times 0.3 \times 0.08 = c$
C. $74 \times 0.3 + 1.08 = c$
D. $74 \times 0.7 + 74 \times 0.08 = c$

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6 A grocery store sells a 5-pound bag of rice for $8.50. They also sell a 3-pound bag of rice for $5.25. What is the difference between the unit rates of the two bags of rice?

A. $0.25 per bag
B. $3.25 per bag
C. $0.05 per bag
D. $1.70 per bag

---

7 Which expressions are equal to –12? Select all correct answers.

A. –3(–4)
B. 36 ÷ (–3)
C. 2 × (–6)
D. $\frac{-24}{-2}$
E. 3 × (–4) × (–1)

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

A. A temperature change from 6°F to –6°F.
B. The balance of an account after depositing $50, if the starting balance was -$50.
C. Walking from the 3rd floor of a building (25 feet above ground level) to the main floor (at ground level).
D. A submarine that goes from 20 meters below sea level to 30 meters below sea level.

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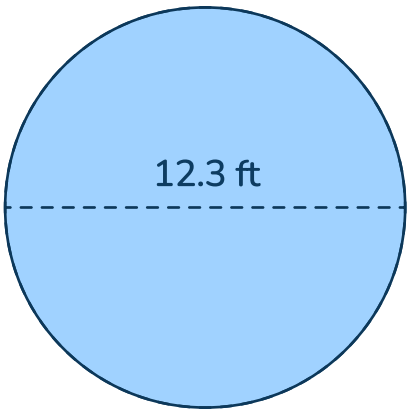
9 Which value of x makes the equation true?

$$4(x-3)-5=-\frac{1}{3}(9x-12)$$

A. $x=-3$
B. $x=2$
C. $x=-2$
D. $x=3$

10 A school is building a new fence around their circular compost bin, shown in the diagram below. Let π = 3.14.



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

A. 38.622 ft
B. 77.244 ft
C. 118.82 ft
D. 19.311 ft

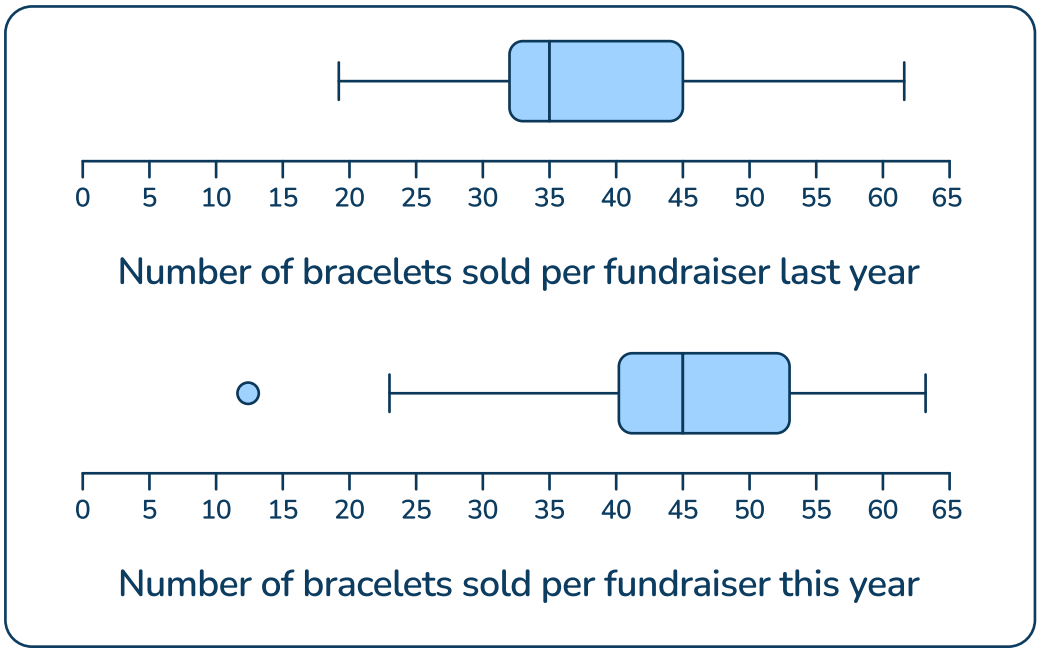
---

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

x	y
3	10.5
5	17.5
6	21
9	31.5

A. 5
B. 2.5
C. 3.5
D. 4.5

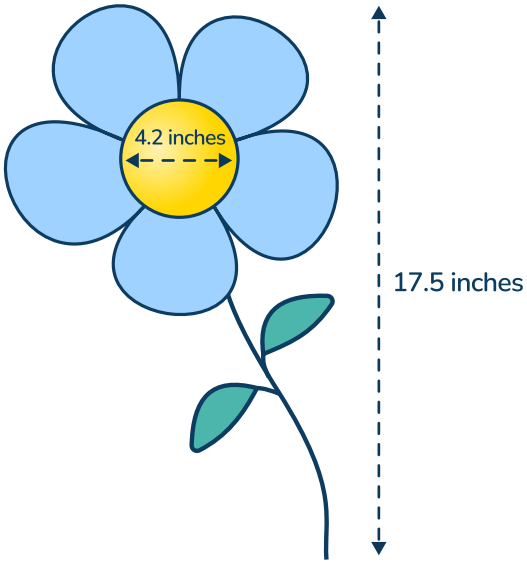
12 Fleur makes friendship bracelets and sells them at various fundraisers on the weekends. The two box plots show the total number of bracelets Fleur sold per fundraiser last year and this year.



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

A. There is an outlier of 10 in this year's fundraisers, while there were no outliers last year.
B. Fleur sold more bracelets in each fundraiser this year than last year.
C. Fleur sold more bracelets at more than half of this year's fundraisers than the top 25% of last year's.
D. The range for this year is larger than the range for last year.

13 Iris owns a flower shop. She sends the drawing below to be designed for her business cards.



She asks the designer to design a flower that is $\frac{1}{3}$ the original size.
What will the area of the center of the flower be on the business card to the nearest hundredth?
Let π = 3.14.

A. 6.16 $inches^2$
B. 4.62 $inches^2$
C. 13.85 $inches^2$
D. 1.4 $inches^2$

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14 The weather app indicates that the probability of rain tomorrow is 0.8. Which word is the best description of the likelihood of rain tomorrow?

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

15 Solve for n.

$$\frac{1}{4}n - 3 \geq -5$$

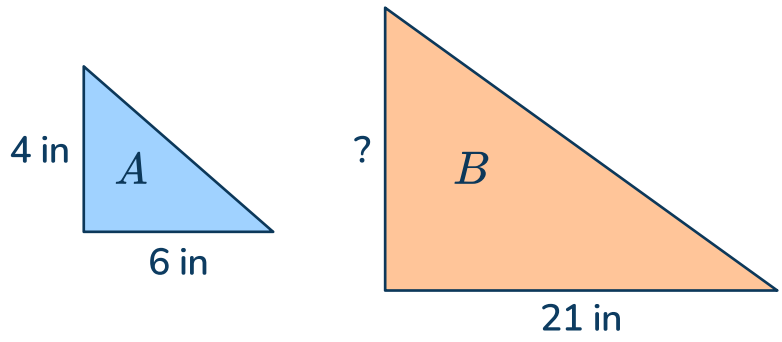
A. $n \geq -8$
B. $n \geq \frac{1}{8}$
C. $n \geq 2$
D. $n \geq -2$

---

16 Leanne collects rainwater for her garden using a cylindrical rain barrel. The rain barrel has a diameter of 3 feet and a height of 5 feet. During a rainstorm, the barrel fills to the top. What is the volume of water collected in the rain barrel to the nearest tenth?

A. 141.3 ft³
B. 23.5 ft³
C. 35.3 ft³
D. 15.3 ft³

17 Triangle B is a scaled version of Triangle A. What is the missing height?



A. 3.5 in
B. 12 in
C. 12.5 in
D. 14 in

---

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

A.

x	0	1.5	2	2.5
y	2	3	4	5

B.

x	3	4.5	6	10.5
y	1	1.5	2	3.5

C.

x	1	2	4	8
y	3	6	12	16

D.

x	1	2	3	4
y	1.5	3	3.5	6

19 What is the value of the expression?

$$\frac{4+\frac{1}{4}-4.5^2}{-6\times 2}$$

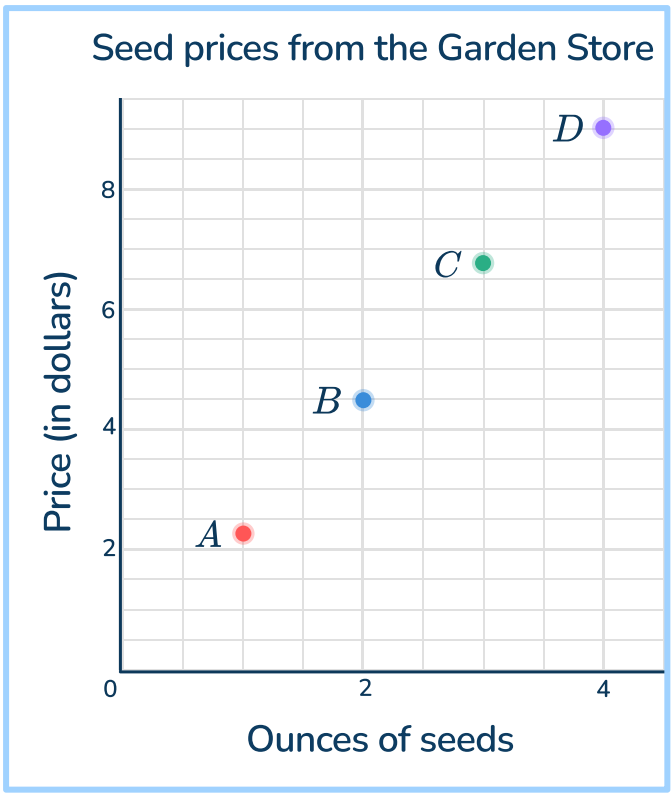
A. –1.3
B. –1.5
C. $1.\overline{3}$
D. 1.5

---

20 Miguel bought 5 games at the same price. He went to the store with $83 and left with $10.25. Choose the equation and solution that represents the cost of each game, g.

A. $83-5g=10.25,\ \ g=14.55$
B. $5g-83=10.25,\ \ g=10.25$
C. $5g+10.25=83,\ \ g=13.55$
D. $83-10.25g=5,\ \ g=14.50$

21 What does point B mean in the context of the graph below?



A. 2 ounces of seeds cost $4.25
B. 2 seeds cost $4.50
C. 4.25 seeds cost $2
D. 2 ounces of seeds cost $4.50

---

22 Which expression is equivalent to $\frac{2}{3}(9 - x) - 2x$?

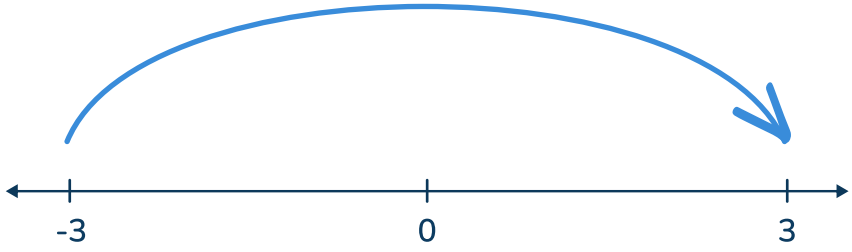
A. $6 - \frac{2}{3}x$

B. $6 - \frac{4x}{3}$

C. $6 - 3x$

D. $6 - \frac{8}{3}x$

23 Which equation is shown by the number line?



A. –3 + –3 = –6
B. –3 + 6 = 3
C. 3 + (–3) = 0
D. –3 – (–6) = 3

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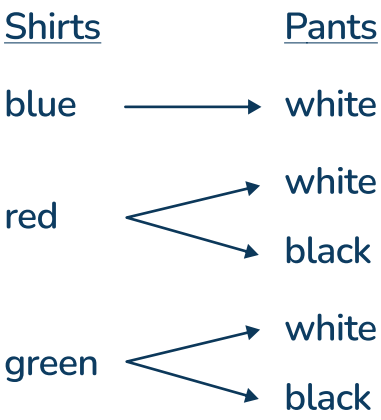
24 Maria is preparing for a cycling race that includes a segment of 25 kilometers. How many miles will Maria need to cycle to complete this segment of the race?
Choose the closest value. (1 km ≈ 0.62 mi)

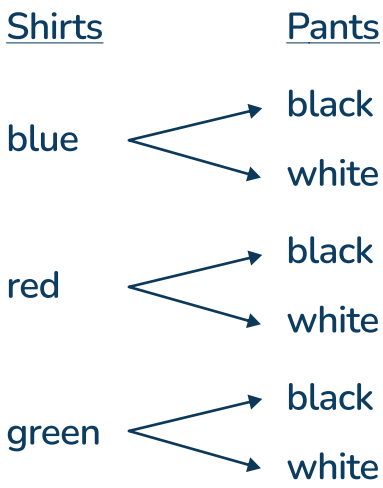
A. 155 miles
B. 12.5 miles
C. 15.5 miles
D. 40.3 miles

25 There are 3 colors of shirts and 2 colors of pants.
Shirts: blue, red, green
Pants: black, white
Which is the correct sample space for all possible combinations of socks and shoes?

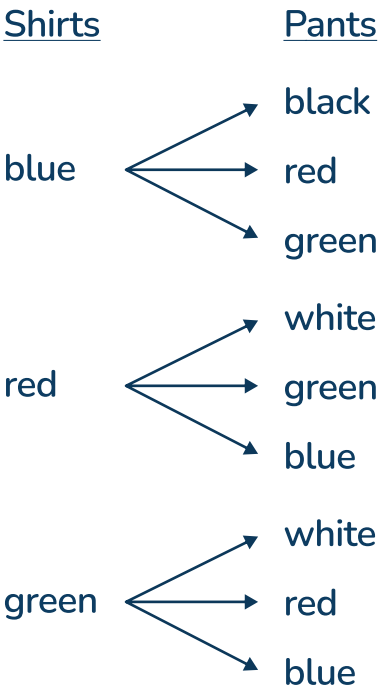
A.



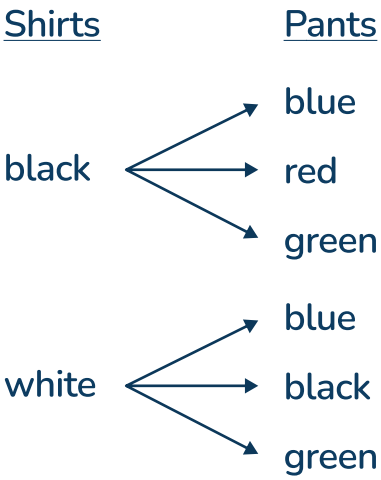
C.



B.



D.



26 Rusty is painting a series of murals on a long wall that stretches for 500 feet. He has a paint sprayer that can cover 110 feet of wall on a full tank of paint. Rusty starts with a full tank of paint. How many times will he need to refill the paint sprayer to complete the murals along the entire wall?

A. 4
B. $4.\overline{54}$
C. 5
D. 6

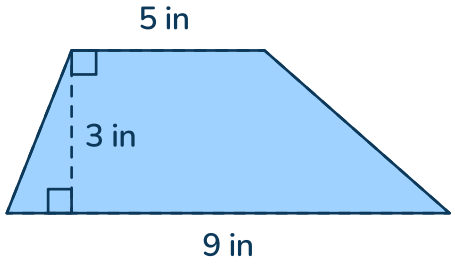
---

27 Carla is working on two math expressions. She says, "I only need to solve expression X because expression Y will give the same result." Do you agree? Why or why not?
Expression X: 8 – 5.38
Expression Y: 5.3 + (–8)

A. Yes, because subtracting a number is the same as adding its negative.
B. No, because the terms in each expression have different signs.
C. Yes, because both expressions involve the same numbers.
D. No, because you can't subtract a smaller number from a larger one.

28 What is the area of the trapezoid?

$$A = \frac{1}{2}(a + b)h$$



A. 42 in²
B. 17 in²
C. 135 in²
D. 21 in²

---

29 The equation $7.5x = y$ models the cost, in dollars, for a child's movie tickets. The table models the cost, Y, for X adult tickets.

X	3	5	6
Y	$30.75	$51.25	$61.50

Which comparison statement is true?

A. 1 adult ticket costs $10.75 more than 1 child ticket
B. 1 child ticket costs $2.75 more than 1 adult ticket
C. 1 child ticket and 1 adult ticket cost $10.75
D. 1 adult ticket costs $2.75 more than 1 child ticket

30 Evaluate the following expression: $(8)(-1.2)(\frac{3}{4})$

A. 7.2
B. –9.6
C. –7.2
D. 9.6

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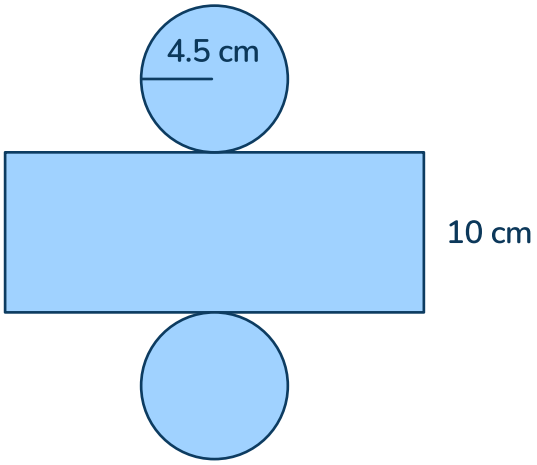
31 The net of a right circular cylinder is shown below.



What is the surface area of the cylinder to the nearest hundredth?

A. 409.98 cm²
B. 282.74 cm²
C. 127.23 cm²
D. 819.96 cm²

32 Jayden bought three new books for $12.75 each. She also bought a set of pens for $5.50. What was the total cost, including a 6% sales tax?

A. $19.36
B. $43.75
C. $49.75
D. $46.38

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33 A garden center sold 50 plants last month. This month, they sold 75 plants. What is the percent increase in the number of plants sold from last month to this month?

A. 25%
B. 75%
C. 20%
D. 50%

---

34 Convert $\frac{5}{6}$ to a decimal.

A. 0.83
B. $0.8\overline{3}$
C. 0.56
D. $0.5\overline{6}$

35 There are three different colors of marbles in a bag – blue, yellow, and red. If the probability of getting blue is $\frac{1}{4}$ and the probability of getting yellow is $\frac{2}{3}$, what is the probability of getting red?

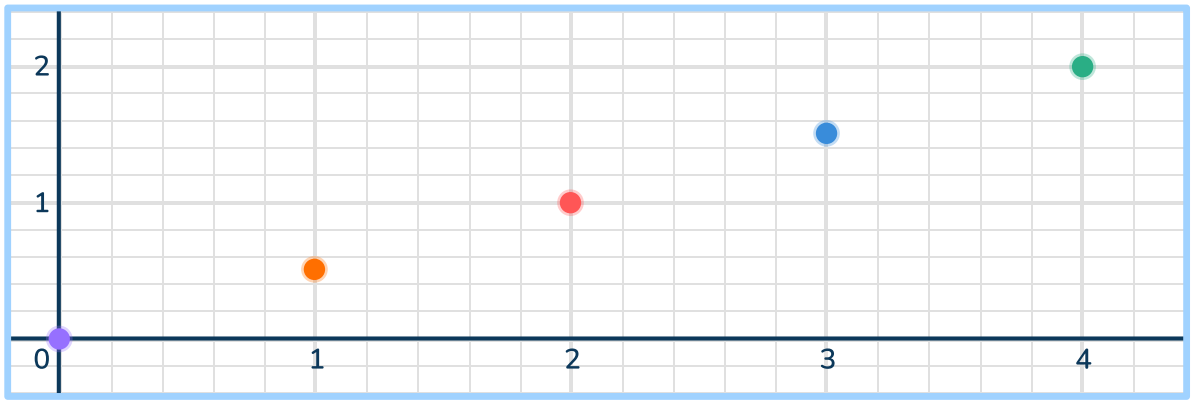
A. $\frac{11}{12}$

B. $\frac{9}{12}$

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

D. $\frac{1}{6}$

36



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

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

B. 2

C. 1.5

D. 2.5

37 Which expressions have a value of $\frac{1}{16}$? Select all correct answers.

A. $\frac{2^3}{2^7}$
B. $(2^4)^{-4}$
C. $2^{-4}+2^4$
D. $(2^2)^{-2}$
E. $2^2 \times 2^{-2}$

---

38 Chloe is selling homemade cookies at a farmers' market for $3 per cookie. She has already sold 12 cookies, c, and wants to make at least $60 from her sales. Which inequality represents the situation?

A. $3c + 12 \geq 60$
B. $3c + 12 \leq 60$
C. $3c + 36 \leq 60$
D. $3c + 36 \geq 60$

---

39 Zayden is making fruit punch for a party. The recipe calls for a ratio of 3 parts orange juice to 2 parts apple juice. He wants to make a total of 15 liters of fruit punch.

How many liters of orange juice and apple juice does Zayden need to use to maintain the correct ratio and make a total of 15 liters of fruit punch?

A. 6 liters of orange juice and 4 liters of apple juice
B. 9 liters of orange juice and 6 liters of apple juice
C. 10 liters of orange juice and 5 liters of apple juice
D. 6 liters of orange juice and 9 liters of apple juice

40 Alex is a graphic designer who charges $35.50 per hour for his services. He works an average of 30 hours per week. Alex invoices his clients every 3 weeks and sets aside 15% of his earnings for future investments.

How much money does Alex save for investments after 9 weeks?

A. $159.75
B. $479.25
C. $1047.25
D. $1437.75

Standard: MA.7.GR.2.2, MA.7.AR.3.1, MA.7.NSO.2.2, MA.7.NSO.2.3
DOK 3
Extended Answer Response - 6 points

41 James is designing a cylindrical coffee can for a new product line. The can has a radius of 4 inches and a height of 8 inches. He wants to wrap a label around the can that covers the entire side surface.

Part A: What is the area of the side of the coffee can that James needs to cover with the label? Explain how you solved it.
Note: Round your answer to the nearest hundredth and use 3.14 for π.

_____
_____
_____
_____

Part B: The label company offers a 15% discount if the total area of labels ordered exceeds 1,000 square inches. If James orders labels for 20 identical cans, how much will he save if the regular price per square inch of label is $0.10? Round the savings to the nearest cent.

Item	KEY	Rationale

41	6 points	**Part A:**
		Student must correctly:
		• Calculates the surface area. For this question, student does NOT need to include the top and bottom of the cylinder. To calculate the lateral surface area:
		• Formula:
		  • $A = 2\pi rh$
		  $A = 2\pi(4)(8)$
		  $A = 2\pi(32)$
		  $A = 64\pi$
		  $A \approx 64 \times 3.14 \approx 200.96$ square inches
		• Explain how they solved.
		
		Part B:
		Student must correctly:
		• Calculate the total area of labels for 20 cans:
		Total area = 20 × 200.96 square inches
		Total area = 4019.2 square inches
		• Calculate the regular total cost without the discount:
		Regular total cost = 4019.2 square inches × 0.10 dollars/square inch
		Regular total cost = 401.92 dollars
		• Calculate the discount amount:
		Discount amount = 401.92 dollars × 0.15
		Discount amount = 60.288 dollars
		• Round the savings to the nearest cent:
		Savings = 60.29 dollars
		Answer: James will save $60.29 with the 15% discount.

Item	KEY	Rationale
	5 points	Student solves correctly but explanation is incomplete or missing. Or student makes one calculation mistake.
	4 points	Student solves correctly but makes 2 calculation errors and Some parts of the explanation are incomplete or unclear.
	3 points	Student makes 2 or 3 calculation errors for the surface area and does not explain or explanation is unclear.
	2 points	Student makes 4 calculation errors for the surface area and does not explain or explanation is unclear.
	1 point	Student makes 4+ calculation errors for the surface area and does not explain or explanation is unclear; student follows the wrong process to solve the problem.
	0 points	Response is blank or does not include any correct calculations or explanations.

Extended response - 6 points
Standard: MA.7.NSO.2.1, MA.7.AR.1.1, MA.7.AR.1.2, MA.7.AR.2.2
DOK 3

42 A doctor's office plans appointments from 10:00 am – 3:00 pm every 20 minutes per doctor. The office has 3 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: _____

_____
_____
_____
_____
_____

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.
		• $45-9h=a$
		  • 45 is the total number of appointments available for all doctors in one day.
		  • $9h$ is the total number of appointments completed after h hours.
		• $3(15-3h)=a$
		  • 15 is the total appointments for each doctor and $3h$ is the number of appointments completed for each hour, h, per doctor. Multiplying by 3 shows that there are 3 doctors.
		• $9(5-h)=a$
		  • 9 is the total appointments for each hour. 5 is the total hours of appointments in 1 day, therefore $5-h$ is the hours passed.
		• $15\times3-3\times3h=a$
		  • 15 is the total appointments for each doctor and multiplying by 3 shows that there are 3 doctors. 3 is the number of appointments completed for each hour per doctor and multiplying by $3h$ shows that there are 3 doctors and h hours passed.
		• $\frac{60}{20}\times5\times3-\frac{60}{20}\times3h=a$
		  • $\frac{60}{20}$ represents 60 minutes in 1 hour divided by 20-minute appointments. Multiplying by 5 shows that there are 5 hours of appointments each day and multiplying by 3 shows that
		  • there are 3 doctors. $\frac{60}{20}\times3h$ shows the number of appointments per hour times 3 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.
	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.

Item	KEY	Rationale
	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 points	Response is blank or does not include any correct calculations or explanations.

Answer Key - Multiple Choice

Item number	Correct answer	Standard(s)	DOK
1	B	**MA.7.NSO.2.2**	DOK 1
2	C	**MA.7.AR.3.1**	DOK 2
3	A, C	**MA.7.AR.1.1**	DOK 1
4	D	**MA.7.DP.2.2**	DOK 2
5	A	**MA.7.AR.3.1, MA.7.NSO.2.1**	DOK 2
6	C	**MA.7.AR.4.2**	DOK 2
7	B, C	**MA.7.NSO.2.2**	DOK 1
8	B	**MA.7.NSO.2.1**	DOK 2
9	D	**MA.7.NSO.1.2**	DOK 1
10	A	**MA.7.GR.1.3**	DOK 2
11	C	**MA.7.AR.4.2**	DOK 1
12	C	**MA.7.DP.1.1, MA.7.DP.1.2**	DOK 2
13	B	**MA.7.GR.1.5, MA.7.GR.1.4**	DOK 2
14	A	**MA.7.DP.2.2**	DOK 1
15	A	**MA.7.AR.2.1**	DOK 1
16	C	**MA.7.GR.2.3**	DOK 2
17	D	**MA.7.GR.1.5, MA.7.AR.4.3**	DOK 2
18	B	**MA.7.AR.4.3**	DOK 1
19	C	**MA.7.NSO.2.3**	DOK 1

Item number	Correct answer	Standard(s)	DOK
20	A	**MA.7.AR.2.2**	DOK 2
21	D	**MA.7.AR.4.4**	DOK 2
22	D	**MA.7.AR.1.2**	DOK 2
23	B	**MA.7.NSO.2.2**	DOK 2
24	C	**MA.7.AR.3.3**	DOK 2
25	C	**MA.7.DP.2.1**	DOK 1
26	A	**MA.7.AR.4.5**	DOK 2
27	B	**MA.7.NSO.2.2**	DOK 2
28	D	**MA.7.GR.1.1**	DOK 2
29	D	**MA.7.AR.4.2**	DOK 2
30	C	**MA.7.NSO.2.2**	DOK 1
31	A	**MA.7.GR.2.1**	DOK 2
32	D	**MA.7.AR.3.1**	DOK 2
33	D	**MA.7.AR.3.1**	DOK 2
34	B	**MA.7.NSO.1.2**	DOK 1
35	C	**MA.7.DP.2.3**	DOK 1
36	A	**MA.7.AR.4.2**	DOK 1
37	A, D	**MA.7.NSO.1.1**	DOK 2
38	D	**MA.7.AR.2.1**	DOK 2
39	B	**MA.7.AR.3.2**	DOK 2
40	D	**MA.7.NSO.2.1**	DOK 2

Item number	Correct answer	Standard(s)	DOK
41	Extended Response	**MA.7.GR.2.2, MA.7.AR.3.1, MA.7.NSO.2.2, MA.7.NSO.2.3**	DOK 3
42	Extended Response	**MA.7.NSO.2.1, MA.7.AR.1.1, MA.7.AR.1.2, MA.7.AR.2.2**	DOK 3

ANSWERS SORTED BY FL BEST STRAND

NSO			
1	B	**MA.7.NSO.2.2**	DOK 1
7	B, C	**MA.7.NSO.2.2**	DOK 1
8	B	**MA.7.NSO.2.1**	DOK 2
9	D	**MA.7.NSO.1.2**	DOK 1
19	C	**MA.7.NSO.2.3**	DOK 1
23	B	**MA.7.NSO.2.2**	DOK 2
27	B	**MA.7.NSO.2.2**	DOK 3
30	C	**MA.7.NSO.2.2**	DOK 1
34	B	**MA.7.NSO.1.2**	DOK 1
37	A, D	**MA.7.NSO.1.1**	DOK 2
40	D	**MA.7.NSO.2.1**	DOK 2

AR			
2	C	**MA.7.AR.3.1**	DOK 2
3	A, C	**MA.7.AR.1.1**	DOK 1
5	A	**MA.7.AR.3.1, MA.7.NSO.2.1**	DOK 2
6	C	**MA.7.AR.4.2**	DOK 2
11	C	**MA.7.AR.4.2**	DOK 1
15	A	**MA.7.AR.2.1**	DOK 1
18	B	**MA.7.AR.4.3**	DOK 1
20	A	**MA.7.AR.2.2**	DOK 2
21	D	**MA.7.AR.4.4**	DOK 2
22	D	**MA.7.AR.1.2**	DOK 2
24	C	**MA.7.AR.3.3**	DOK 2
26	A	**MA.7.AR.4.5**	DOK 2
29	D	**MA.7.AR.4.2**	DOK 2
32	D	**MA.7.AR.3.1**	DOK 2
33	D	**MA.7.AR.3.1**	DOK 2
36	A	**MA.7.AR.4.2**	DOK 1
38	D	**MA.7.AR.2.1**	DOK 2
39	B	**MA.7.AR.3.2**	DOK 2
42	Extended Response	**MA.7.NSO.2.1, MA.7.AR.1.1, MA.7.AR.1.2, MA.7.AR.2.2**	DOK 3

GR			
10	A	**MA.7.GR.1.3**	DOK 2
13	B	**MA.7.GR.1.5, MA.7.GR.1.4**	DOK 2
16	C	**MA.7.GR.2.3**	DOK 2
17	D	**MA.7.GR.1.5, MA.7.AR.4.3**	DOK 2
28	D	**MA.7.GR.1.1**	DOK 2
31	A	**MA.7.GR.2.1**	DOK 2
41	Extended Response	**MA.7.GR.2.2, MA.7.AR.3.1, MA.7.NSO.2.2, MA.7.NSO.2.3**	DOK 3

DP			
4	D	**MA.7.DP.2.2**	DOK 2
12	C	**MA.7.DP.1.1, MA.7.DP.1.2**	DOK 2
14	A	**MA.7.DP.2.2**	DOK 1
25	C	**MA.7.DP.2.1**	DOK 1
35	C	**MA.7.DP.2.3**	DOK 1

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