Name _____ Date ____/____/_____

Cumulative Take Home Test #3

1. A school newspaper will survey students about the quality of the school's lunch program. Which method will create the least biased results?

    1. Twenty-five vegetarians are randomly surveyed.
    2. Twenty-five students are randomly chosen from each grade level.
    3. Students who dislike the school's lunch program are chosen to complete the survey.
    4. A booth is set up in the cafeteria for the students to voluntarily complete the survey.

2. Solve:
   7x - 3 = 5x + 5

    a. x = 3
    b. x = 4
    c. x = 1
    d. x = 0.5

Solve for x in each of the equations or inequalities below, and name the property and/or properties used:

3. $10 + 3x = 5x$

4. Solve the linear equation: 12 = -2(-9 -3z)

    a. -36
    b. -1
    c. 18
    d. 2

5. Which statement illustrates the additive identity property?

1. $6 + 0 = 6$
2. $-6 + 6 = 0$
3. $4(6 + 3) = 4(6) + 4(3)$
4. $(4 + 6) + 3 = 4 + (6 + 3)$

6. A cell phone can receive 120 messages per minute. At this rate, how many messages can the phone receive in 150 seconds?

1. 48
2. 75
3. 300
4. 18,000

7. Which equation illustrates the associative property?

1. x+y+z=x+y+z
2. x(y+z)=xy+xz
3. x+y+z=z+y+x
4. (x+y)+z=x+(y+z)

8. Solve for x:
-7 - x - 3 = 12

a. 22
b. -22
c. 16
d. -16

9. Simplify
$\frac{3^7}{3^7}$

a. 1
b. 0
c. 9
d. 2187

10. Simplify:
-2n - (9 - 10n)

a. 8n + 9
b. -12n - 9
c. 12n - 9
d. 8n - 9

11. Solve:
-19 + 4x = -23

a. x = -1

b. x = -1 $\frac{1}{16}$

c. -2

d. 2

12. Solve for n:

2(n + 4) = 8 - 6(n - 4)

a. 0

b. 16

c. 3

d. -3

13. It takes Tammy 45 minutes to ride her bike 5 miles. At this rate, how long will it take her to ride 8 miles?

1. 0.89 hour
2. 1.125 hours
3. 48 minutes
4. 72 minutes

14. Solve for x:
6(x + 8) = 5(x - 4)

a. 28

b. -12

c. -69

d. -68

15. Solve for x:
8x – 9 = x + 9

a. 18/7

b. -18/7

c. 7/18

d. 1/8

16. Solve:
$-\frac{1}{3}x + \frac{3}{4}x = 10$

a. $\frac{10}{13}$

b. 2

c. 24

d. -24

17. Solve:

$\frac{2}{5}t + 3 = 11$

a. 20

b. -20

c. $\frac{7}{5}$

d. $\frac{8}{5}$

18. Solve for m: $8(m + 5) = 16$

a. 11/8

b. -11/8

c. 3

d. -3

19. A teacher asked the class to solve the equation 3(x + 2) = 21. Robert wrote 3x + 6 = 21 as his first step. Which property did he use?

1. associative property

2. commutative property

3. distributive property

4. zero property of addition

20. Combine like terms to simplify:

$10\frac{1}{3}x - 1 + \frac{1}{4}x$

a. $10\frac{7}{12}x - 1$

b. $9\frac{7}{12}$

c. $9\frac{7}{12}x$

d. $10\frac{2}{7}x - 1$

21. The equation $3(4x) = (4x)3$ illustrates which property?

1. commutative

2. associative

3. distributive

4. multiplicative inverse

22. Simplify:
-5.5 - 10 + (-3.8) + 10 ½

a. -1.2

b. -8.8

c. 8.8

d. 1.2

23. Simplify the expression by combining like terms.

7b - 3b + 4

a. 10b + 4

b. 8b

c. 4b + 4

d. -4b + 4

24. If the sales tax rate is 8%, how much tax would Luis pay for a pair of pants for $18 and two shirts for $9.99 each?

a. $1.44

b. $3.04

25. Solve: $-5x + 15 = -10$

a. -1

b. 5

c. -5

d. 1

26. Simplify the following expression:

(12x – 5) – (7x – 11)

a. 19x + 6

b. 5x - 6

c. 5x - 10

d. 5x + 6

27. If Joey earns' $46.80 for 6 hours of work;-what-is-Joey's rate of pay?

a. $6.80 per hour

b. $46.80 per week

c. $62.00 per day

d. $7.80 per hour

28. Solve: $\frac{1}{4}x = -\frac{7}{10}$

a. $-\frac{7}{10}$

b. $2\frac{4}{5}$

c. $5\frac{5}{7}$

d. $-2\frac{4}{5}$

29. Which equation illustrates the associative property?

1. x+y+z=x+y+z
2. x(y+z)=xy+xz
3. x+y+z=z+y+x
4. (x+y)+z=x+(y+z)

30. Simplify:
3(m + 8) – 10m

a. -7m + 24

b. 7m - 24

c. 7m + 24

d. -7m - 24

31. Simplify the ratio :
15:9

a. 12:6

b. 3:1

c. 5:3

d. 3:5

32. Simplify the expression.
8x + 4(x - 1)

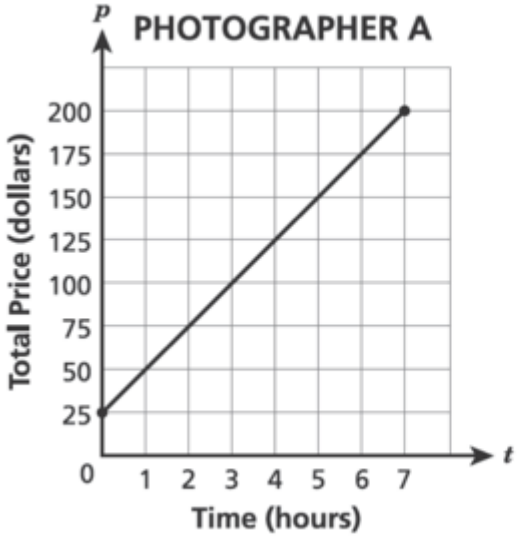
a. 32x + 3

b. 12x + 3

c. 12x - 4

d. 9x - 4

33. Two photographers offer different pricing plans for their services. The graph below models the prices Photographer A charges. The table below shows the prices Photographer B charges. Each photographer charges a one-time equipment fee and an hourly rate.



PHOTOGRAPHER B

Time (hours)	2	4
Total Price	$80	$110

Which statement about the two pricing plans is true?

a. Photographer A charges $15 per hour more than Photographer B.

b. Photographer B charges $15 per hour more than Photographer A.

c. Photographer A's equipment fee is $25 less than Photographer B's.

d. Photographer B's equipment fee is $25 less than Photographer A's.

34. Simplify the following:

$7x + 5 - 3x$

a. $9x$

b. $4x + 5$

c. $10x + 5$

d. $10x - 5$

35. Simplify the expression

$2(3x - 5) + 4(-6x + 1)$

a. $-18x - 6$

b. $-18x - 14$

c. $16x + 14$

d. $16x - 6$

36. You jog 3.6 miles in 30 minutes. At that rate, how long will it take you to jog 4.8 miles?

a. 30 minutes

b. 40 minutes

c. 50 minutes

d. 1 hour

37. Joseph typed a 1,200-word essay in 25 minutes. At this rate, determine how many words he can type in 45 minutes.

38. Nicole's aerobics class exercises to fast-paced music. If the rate of the music is 120 beats per minute, how many beats would there be in a class that is 0.75 hour long?

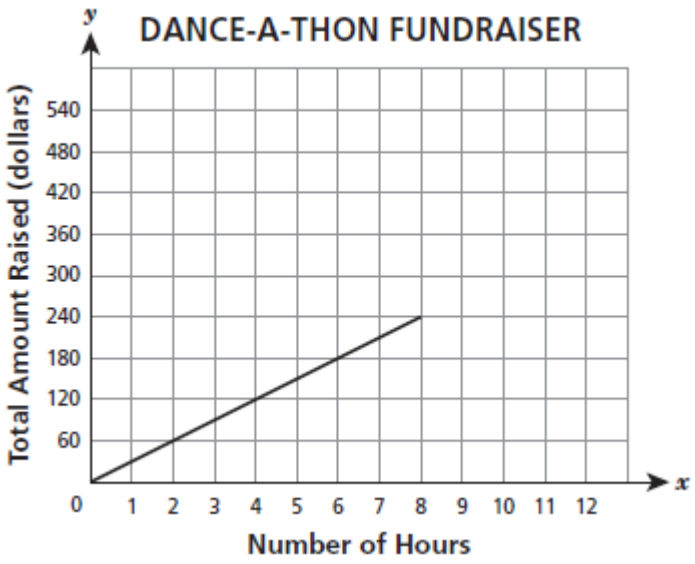
1. 90

2. 160

3. 5,400

4. 7,200

39. Students organized a 12-hour "dance-a-thon" as a fundraiser for their summer camp. The graph below represents the amount of money they raised during the first 8 hours.



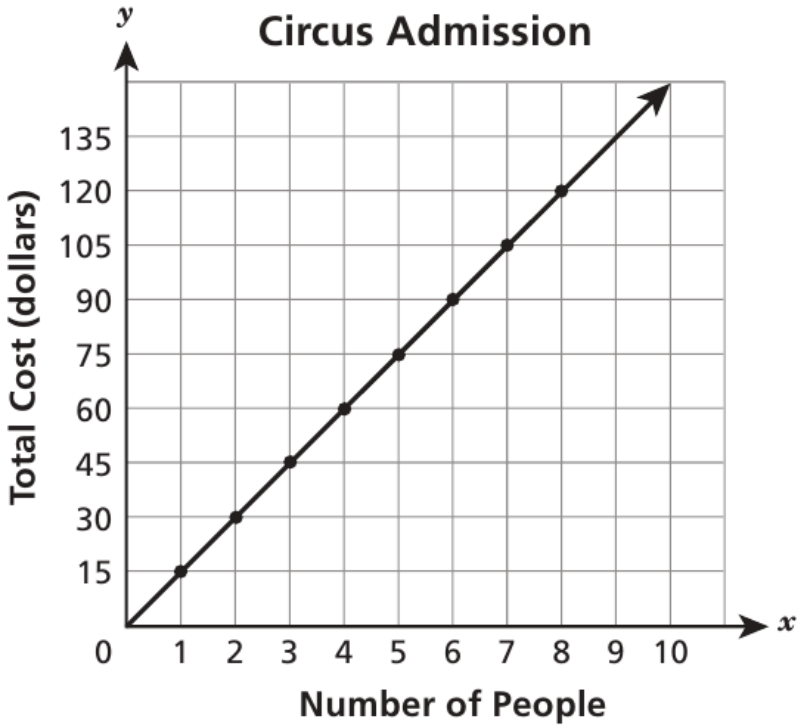
What was the amount of money raised per hour during the first 8 hours?

Show your work or explain how you determined your answer.

Answer $_____ per hour

During the next 4 hours of the dance-a-thon, the students raised money at twice the hourly rate of the first 8 hours.
On the coordinate plane on the previous page, complete the graph for the next 4 hours to represent the total amount of money raised at the dance-a-thon. Use words and numbers on the following lines to explain how you knew where to draw the graph.

40. The graph below shows the relationship between the number of people in a group and the total cost of admission tickets for a circus.



What point on the graph represents the unit rate?

a. (0, 0)

b. (1, 15)

c. (15, 1)

d. (8, 120)