Questions 10 and 2 refer to the following:

Simplify the given expression:

10) $(3x)^2$

A) $3x^2$ C) $6x^2$
B) $9x$ D) $9x^2$

11) $(x^a)^b$

A) x^{ab} C) x^{2ab}
B) $x^{2(a+b)}$ D) x^{a+b}

12) Find the product of the given terms:

$a^2 \cdot a^6 \cdot a^7$

A) $3a^{14}$ C) a^{15}
B) $3a^{15}$ D) a^{14}

13) Expressed in simplest form, $(3x^3)(2y)^2(4x^4)$ is equivalent to

A) $24x^{12}y^2$ C) $48x^{12}y^2$
B) $48x^7y^2$ D) $24x^7y^2$

14) Elena is a car salesperson with *Mileage's Motors*. To earn a sales bonus for the month, she must sell $8x^2 + 9x - 15$ cars. So far, she has only sold $5x^2 + 2x - 9$ cars. How many more cars, in terms of x, must she sell in order to earn the sales bonus?

A) $3x^2 + 7x + 6$
B) $-3x^2 - 7x + 6$
C) $3x^2 + 7x - 6$
D) $13x^2 + 11x - 21$

Questions 15 through 25 refer to the following:

Simplify the given expression:

15) $(-7a - 19c) - (-12a + 30c) - (-21a - 11c)$

A) $26a - 38c$ C) $-26a - 22c$
B) $26a + 38c$ D) $2a + 22c$

16) $(8x + 5y) - (3x + 2y)$

A) $8xy$ C) $8(x + y)$
B) $5x + 3y$ D) $5x + 7y$

17) $(5x^2 - 9x + 3) - (-4x^2 + 3x - 5)$

A) $x^2 - 6x - 2$ C) $x^2 - 6x + 8$
B) $9x^2 - 12x + 8$ D) $9x^2 - 12x - 2$

18) $(-6x + 5z) - (-8x + z)$

A) $-14x + 6z$ C) $2x + 4z$
B) $-14x + 4z$ D) $2x + 6z$

19) $(2r + 6s) - (7r - s)$

A) $-5r + 7s$ C) $2(r + s)$
B) $-5(r + 7s)$ D) $2r + s$

20) $5x^2 - 4x + 7 - (2x^2 - 3x - 4)$

A) $3x^2 - x + 3$ C) $3x^2 + x + 11$
B) $3x^2 - x - 3$ D) $3x^2 - x + 11$

21) $(-9a - 20c) - (-15a + 3c) - (-22a - 7c)$

A) $28a - 16c$ C) $-16a - 16c$
B) $-2a - 24c$ D) $28a - 24c$

22) $(7x + 2y) - (4x + 3y)$

A) $8(x + y)$ C) $3x + 5y$
B) $3(x - y)$ D) $3x - y$

23) $(10pq - rt) - (pq + 4rt)$

A) $4(pq - rt)$ C) $9pq - 5rt$
B) $9pq + 3rt$ D) $12(pq + rt)$

24) $(a - 4b) - (9a + 2b)$

A) $-8a - 2b$ C) $-10(a + b)$
B) $-8a - 6b$ D) $-14(a - b)$

25) $(-2y - 3) + (y - 5)$

26) $(5r + 2s) + (-3r + s)$

27) $(5 - 4y) + (10y - 2)$

28) $(3y^2 - 2y) + (-5y + 6)$

29) $(-10x^2y + 5xy^2) + (-2x^2y - xy^2)$

30) $(3a^2 + 2ab - b^2) + (-a^2 + 5ab - b^2)$

31) $(8x^2 + 5x - 3) + (-9x + 4x^2)$

32) $(9a - 5b) + (a - 6b)$

33) $(-a + 3b) + (9a - 7b)$

34) $(3x^2 + 4x - 7) + (2x^2 - 6x - 1)$

35) Subtract $9x^2 - 4xy + 3y^2$ from $3xy - 5x^2 - 7y^2$.

36) From $-3pq + 4rs$, subtract $pq - 2rs$.

37) What is $2a - 4b + 3c$ decreased by $6a + 5b - c$?

Questions 38 through 31 refer to the following:

Find the quotient of the given terms:

38) $\frac{y^8}{y^4}$

39) $\frac{20y^5z}{-4y^5z}$

40) $\frac{52a^{10}b^8}{4a^4b^2}$

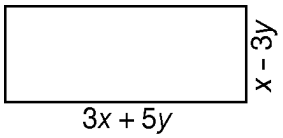
41) Simplify the given expression:

$\frac{x^{-24}}{x^{-3}}$

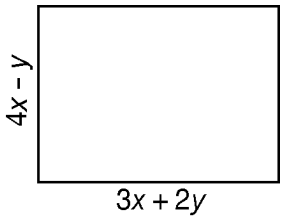
42) A textile manufacturer has orders for $12x^2 - 16x + 17$ yards of a certain upholstery fabric. They have $9x^2 - 12x - 10$ yards in their warehouse. How many more yards of fabric (in terms of x) must be manufactured to fulfill the orders?

43) The *Watch Your Digits* alligator farm has sold $3x^2 - 12x + 18$ alligators this month. If they have already shipped $2x^2 + 18x - 10$ alligators, how many more alligators, in terms of x, remain to be shipped?

44) What is the perimeter of the rectangle below in terms of x and y?



45) What is the perimeter of the rectangle below in terms of x and y?



46) The *Acme Concrete Company* needs to deliver $15c^2 + 8c - 24$ cubic yards of concrete to a particular client in a single day. So far they have delivered $12c^2 - 16c + 38$ cubic yards. How many more cubic yards (in terms of c) must be delivered to fulfill their client's order?

47) Represent, in terms of y, the perimeter of a rectangle whose width is represented by y and length is represented by $5 - 3y$.

48) Represent, in terms of x, the perimeter of a square each of whose sides is $3x + 7$.

49) Represent in terms of r and s, the perimeter of a triangle whose sides are represented by $2r + 5s$, $-7r + s$, and $8r - 9s$.

50) Represent, in terms of y, the perimeter of a square each of whose sides is $9y - 5$.

10) D 11) A 12) C 13) B 14) C

15) A 16) B 17) B 18) C 19) A

20) D 21) A 22) D 23) C 24) B

25) $-y - 8$

26) $2r + 3s$

27) $6y + 3$

28) $3y^2 - 7y + 6$

29) $-12x^2y + 4xy^2$

30) $2a^2 + 7ab - 2b^2$

31) $12x^2 - 4x - 3$

32) $10a - 11b$

33) $8a - 4b$

34) $5x^2 - 2x - 8$

35) $-14x^2 + 7xy - 10y^2$

36) $-4pq + 6rs$

37) $-4a - 9b + 4c$

38) y^4

39) -5

40) $13a^6b^6$

41) x^{-21} OR $\frac{1}{x^{21}}$

42) $3x^2 - 4x + 27$ yards

43) $x^2 - 30x + 28$ alligators

44) $8x + 4y$ OR $4(2x + y)$

45) $14x + 2y$ OR $2(7x + y)$

46) $3c^2 + 24c - 62$ yds^3

47) $10 - 4y$ OR $2(5 - 2y)$

48) $12x + 28$ OR $4(3x + 7)$

49) $3r - 3s$ OR $3(r - s)$

50) $36y - 20$ OR $4(9y - 5)$