1) Find the value of $x + 4$ if $x = 12$.

A.   12

B.   8

C.   16   *(circled)*

D.   10

E.   not possible

$12 + 4 = 16$

2) When $x = 3$ and $y = 5$, by how much does the value of $3x^2 - 2y$ exceed the value of $2x^2 - 3y$?

A.   4

B.   14   *(circled)*

C.   16

D.   20

E.   50

$3(3)^2 - 2(5)$

$27 - 10 = 17$

$2(3)^2 - 3(5)$

$18 - 15 = 3$

$17 - 3 = 14$

3) Solve for x if $5x + 8 = 16$.

A.   3.2

B.   8

C.   4.8

D.   1.6   *(circled)*

E.   2

$-8 \quad -8$

$\dfrac{5x}{5} = \dfrac{8}{5}$

$x = \dfrac{8}{5} = 1.6$

4) Solve for x if $4(x + 4) - 8 = 16$.

A.   -2

B.   2   *(circled)*

C.   8

D.   5

E.   1

$+8 \quad +8$

$\dfrac{4(x+4)}{4} = \dfrac{24}{4}$

$x + 4 = 6$

$-4 \quad -4$

$x = 2$

5) What is the slope of the line that goes through the points $(6, 3)$ and $(5, -2)$?

A.   5/11

B.   1

C.   5   *(circled)*

D.   1/5

E.   -5

$x_1 \; y_1 \qquad x_2 \; y_2$

$\dfrac{y_2 - y_1}{x_2 - x_1} = \dfrac{-2 - 3}{5 - 6} = \dfrac{-5}{-1} = 5$

6) The line $y = -4x + 2$

A.   Slopes downward and intersects the x-axis at 2

B.   Has no slope and intersects both axis at the origin

C.   Slopes upward and intersects the y-axis at 2

D.   Slopes downward and intersects the y-axis at 2   *(circled)*

E.   Slopes upward and intersects the x-axis at 2

7) Expand $(x + 3)(x - 5)$

A. $x^2 + 2x - 15$

B. $x^2 - 2x - 15$ (circled)

C. $x^2 - 2x + 15$

D. $x^2 - 2x - 2$

E. $x^2 - 2x + 2$

	x	3
x	x^2	$3x$
-5	$-5x$	-15

$x^2 - 2x - 15$

8) Factor $x^2 + 6x - 27$

A. $(x + 9)(x - 3)$ (circled)

B. $(x + 2)(x + 3)$

C. $(x - 9)(x - 3)$

D. $x(x + 6) - 27$

E. $x^2 + 3(2x - 9)$

	x	9
x	x^2	$9x$
-3	$-3x$	-27

$(x + 9)(x - 3)$

9) What mathematical expression fits the following:
A rental car company charges a rental fee of $20 per day and $0.60 a mile.

A. $20 + $0.6

B. $20 + $0.6m

C. $20d + $0.6

D. $20d + $0.6m   (circled)

E.   ($20d)($0.6)

$0.60m + .20d$

10) If $f(x) = 3x^2 - 5x + 12$, find $f(4)$

A.   4

B.   136

C.   178

D.   4x

E.   40   (circled)

$f(4) = 3(4)^2 - 5(4) + 12$
$= 4 \cdot 8 - 20 + 12 = 40$

11) A car averages 27 miles per gallon. If gas costs $4.04 per gallon, how much would the gas would cost for this car to travel 2727 miles?

A. $44.44

B. $109.08

C. $118.80

D. $408.04   (circled)

E. $444.40

$\dfrac{2727 \text{ miles}}{27 \frac{\text{miles}}{\text{gallon}}} = 101 \text{ gallons} \times \$4.04$
$= \$408.04$

12) Sales for a business were 3 million dollars more the second year than the first, and sales for the third year were double the sales for the second year. If sales for the third year were 38 million dollars, what were sales, in million of dollars, for the first year?

A.   16   (circled)

B.   17.5

C.   20.5

D.   22

E.   35

$\to x$

$\dfrac{38,000,000}{2} = \dfrac{2(x + 3,000,000)}{2}$

$19,000,000 = x + 3,000,000$
$-3,000,000 \qquad\qquad -3,000,000$

$\$16,000,000$