ho

12 If $f(x) = \dfrac{\sqrt{2x+3}}{6x-5}$, then $f\left(\dfrac{1}{2}\right) =$

$\dfrac{\sqrt{2(\frac{1}{2})+3}}{6(\frac{1}{2})-5} = \dfrac{\sqrt{4}}{3-5} = \dfrac{2}{-2} = -1$

(1) 1

(3) -1 ⃝

(2) -2

(4) $-\dfrac{13}{3}$

17 If $f(x) = x^2 - 2x - 8$ and $g(x) = \dfrac{1}{4}x - 1$, for which values of x is $f(x) = g(x)$?

(1) -1.75 and -1.438

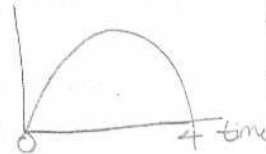(3) -1.438 and 0

(2) -1.75 and 4 ⃝

(4) 4 and 0

31. A toy rocket is launched from the ground straight upward. The height of the rocket above the ground, in feet, is given by the equation $h(t) = -16t^2 + 64t$, where t is the time in seconds. Determine the domain for this function in the given context. Explain your reasoning.

$0 \leq t \leq 4$

The rocket took off at 0 seconds and lands 4 seconds later.

29. How many real solutions does the equation $x^2 - 2x + 5 = 0$ have? Justify your answer.

none b/c the discriminant is negative.

$b^2 - 4ac$ ← formula

$(-2)^2 - 4(1)(5)$

-16

6 Michael borrows money from his uncle, who is charging him simple interest using the formula $I = Prt$. To figure out what the interest rate, r, is, Michael rearranges the formula to find r. His new formula is r equals

(1) $\dfrac{I-P}{t}$

(3) $\dfrac{I}{Pt}$ *(circled)*

(2) $\dfrac{P-I}{t}$

(4) $\dfrac{Pt}{I}$

handwritten: $I = P \cdot R \cdot T$ $\dfrac{I}{PT} = \dfrac{PRT}{P \cancel{T}}$

7 Which equation is equivalent to $y - 34 = x(x - 12)?$ *(handwritten: +34)*

(1) $y = (x - 17)(x + 2)$

(3) $y = (x - 6)^2 + 2$

(2) $y = (x - 17)(x - 2)$

(4) $y = (x - 6)^2 - 2$ *(circled)* *handwritten: vertex (6, -2)*

8 The equation $A = 1300(1.02)^7$ is being used to calculate the amount of money in a savings account. What does 1.02 represent in this equation?

(1) 0.02% decay *(crossed out)*

(3) 2% decay *(crossed out)*

(2) 0.02% growth

(4) 2% growth *(circled)*

9 The zeros of the function $f(x) = 2x^2 - 4x - 6$ are

(1) 3 and -1 *(circled)*

(3) -3 and 1

(2) 3 and 1

(4) -3 and -1

handwritten table:
x	y
3	0
-1	0

or

$2x^2 - 4x - 6 = 0$
$2(x^2 - 2x - 3) = 0$
$2 \neq 0 \quad (x - 3)(x + 1) = 0$
$x = 3 \quad x = -1$

10 When $(2x - 3)^2$ is subtracted from $5x^2$, the result is

(1) $x^2 - 12x - 9$

(3) $x^2 + 12x - 9$ *(circled)*
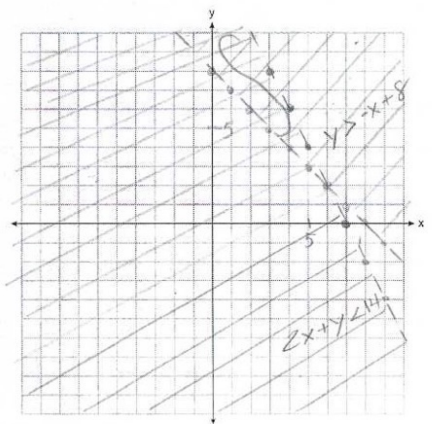
(2) $x^2 - 12x + 9$

(4) $x^2 + 12x + 9$

handwritten:
$5x^2 - (2x-3)^2$
$5x^2 - [(2x-3)(2x-3)]$
$5x^2 - (4x^2 - 12x + 9)$
$5x^2 - 4x^2 + 12x - 9$
$x^2 + 12x - 9$ *(circled)*

handwritten box table:
	2x	-3
2x	$4x^2$	$-6x$
-3	$-6x$	$+9$

$-12x$

34. The sum of two numbers, x and y, is more than 8. When you double x and add it to y, the sum is less than 14.

handwritten:
$x + y > 8$
$2x + y < 14$

Graph the inequalities that represent this scenario on the set of axes below.

handwritten:
$x + y > 8$
$-x \qquad -x$
$y > -x + 8$
$m = -\dfrac{1}{1} \quad b = 8$
dotted line
shade ↑

$2x + y < 14$
$-2x \qquad -2x$
$y < -2x + 14$
$m = -2 \quad b = 14$
dotted shade ↓
use intercepts

$\dfrac{2x}{2} = \dfrac{14}{2}$
$x = 7$