1. $\frac{b+c}{a}$

---

2. 20

   24

---

3. A. The solution set is $\{$ **2, − 2,8** $\}$.(Use a comma to separate answers as needed.)

---

4. 9250

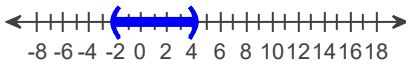
---

5. 5

   $\frac{1}{2}$

---

6. A. The solution set is **(− 2,4)** .
   (Type your answer in interval notation. Use integers or fractions for any numbers in the expression.)

   B. 

---

7. $2\sqrt{61}$

   (2, − 3)

---

8. A. **(7,0),(− 7,0),(0,49)** (Type an ordered pair. Use a comma to separate answers as needed.)

   No

   Yes

   No

---

9. $\frac{3}{5}$

   $-\frac{5}{3}$

   $-\frac{1}{4}$

   B. Since $m_1 \cdot m_2 = -1$, the triangle has two sides perpendicular.

---

10. $9x^2 + x - 2$

    $-9x^2 + x - 2$

    $9x^3 - 18x^2$

    $\frac{x-2}{9x^2}$

    146

    -80

    0

    $-\frac{1}{9}$

---

11. -2

    2

    2

    -1

    Negative

    Positive

    $-18, -3, 12$

    $-18 < x < -3, 12 < x \leq 18$

    $-21 \leq x \leq 18$

    $-2 \leq y \leq 3$

    $-18, -3, 12$

    -1

    3

    1

    $-21, 6$

    -9

---

12. A.
    The function f is increasing on the interval [0,2] because for any choice of x_1 and x_2 in the interval for which $x_1 < x_2$, $f(x_1) < f(x_2)$.

13.

---

14. 185

60

26

D. $[0,\infty)$

---

15. $-x^2-8x-19$

---

16. $x^3-16x^2+80x-128$

---

17. $-x^3$

$-3,1$

9

$-3,1$

2

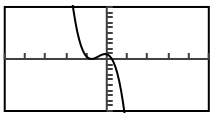
(1) touches

-3

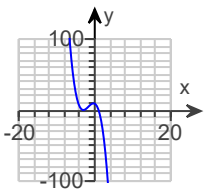
1

(2) crosses

1

A. 

$(-3,0),(-0.33,9.48)$

B. 

$(-\infty,\infty)$

$[-3,-0.33]$

$(-\infty,-3],[-0.33,\infty)$

---

18. $\frac{1}{2},5$

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

---

19. $\frac{-3x}{x-7}$

B. The domain is $\{x|x \neq$ **−3** $\}$.(Type integers or fractions. Use a comma to separate answers as needed.)

C. The range is $\{y|y \neq$ **7** $\}$.(Type integers or fractions. Use a comma to separate answers as needed.)

A. The domain is $\{x|x \neq$ **7** $\}$.(Type integers or fractions. Use a comma to separate answers as needed.)

C. The range is $\{y|y \neq$ **−3** $\}$.(Type integers or fractions. Use a comma to separate answers as needed.)

---

20. $\frac{1}{4}$

21.

---

22. $4^{-3} = \frac{1}{64}$

---

23. $\sqrt{21}, -\sqrt{21}$

---

24. $e^{x \ln 7}$

---

25. $\ln 6 + \ln x + \frac{1}{2}\ln(1+5x) - 11\ln(x-5)$

---

26. A. The solution set is $\left\{ \frac{1}{3} \right\}$.

(Simplify your answer. Type an exact answer. Use a comma to separate answers as needed.)

---

27. 1.52

---

28. A.

The solution is x = **3**, y = **−2**, and z = **4**. (Type integers or simplified fractions.)

---

29. A. AB = $\begin{bmatrix} 12 & -6 \\ 11 & 12 \end{bmatrix}$ (Simplify your answers.)

A. BA = $\begin{bmatrix} -30 & 61 \\ -30 & 54 \end{bmatrix}$ (Simplify your answers.)

---

30. 240
